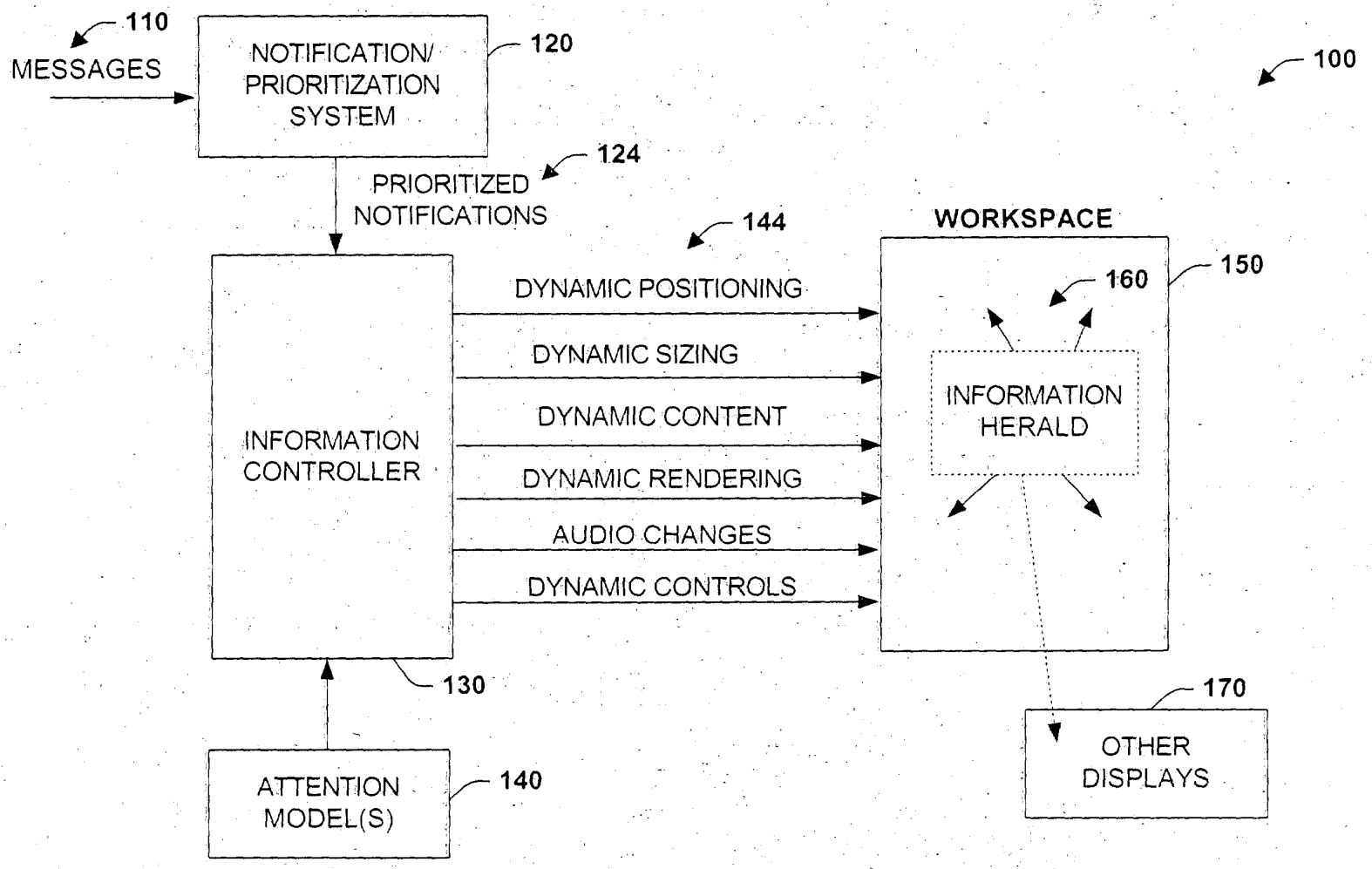

110
MESSAGES
NOTIFICATION/
PRIORITIZATION
SYSTEM
120
100
124
PRIORITIZED
NOTIFICATIONS
144
WORKSPACE
150
160
DYNAMIC POSITIONING
DYNAMIC SIZING
DYNAMIC CONTENT
DYNAMIC RENDERING
AUDIO CHANGES
DYNAMIC CONTROLS
INFORMATION
CONTROLLER
INFORMATION
HERALD
130
170
OTHER
DISPLAYS
ATTENTION
MODEL(S)
140

FIG. 1

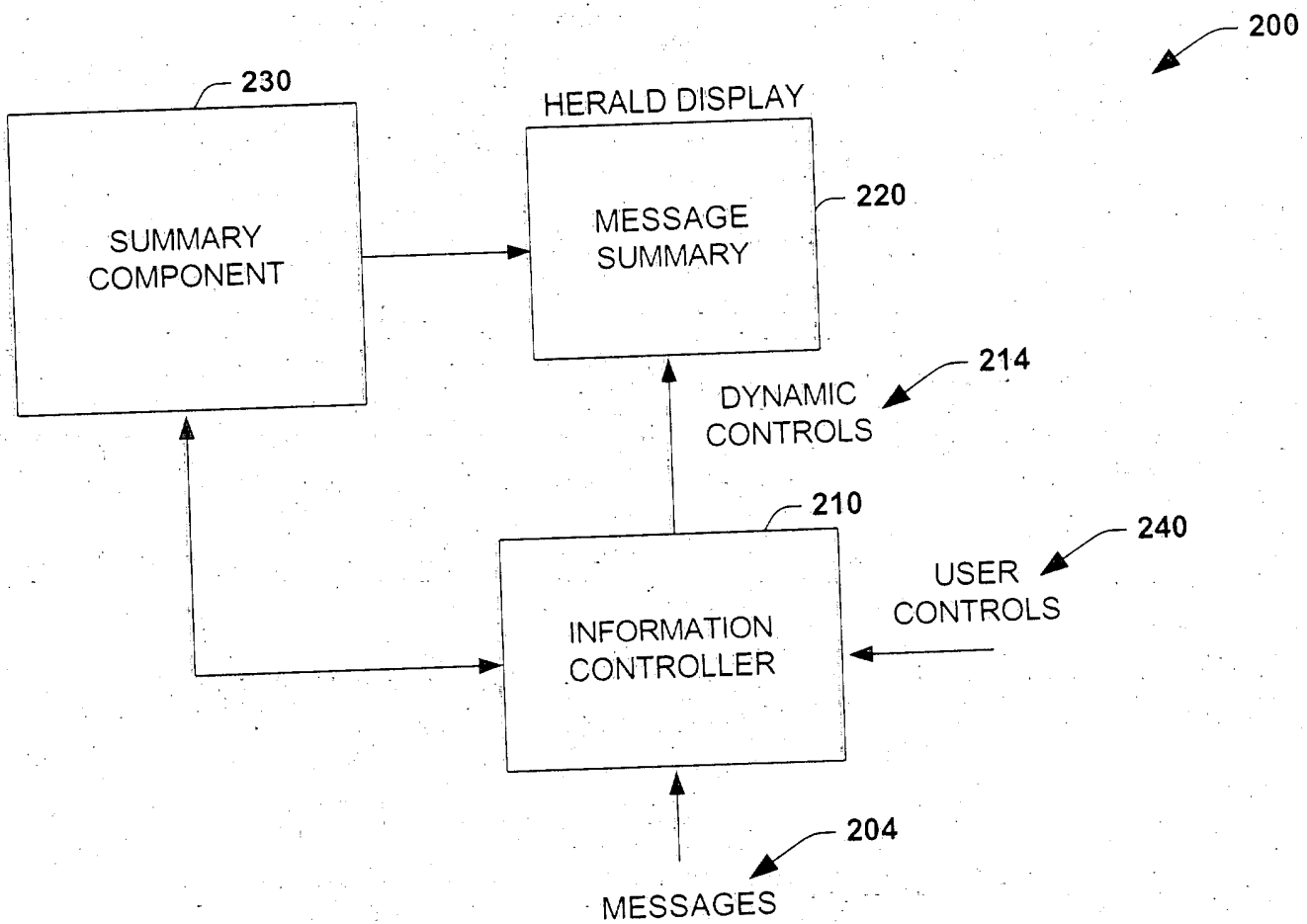

200
230
SUMMARY COMPONENT
HERALD DISPLAY
MESSAGE SUMMARY
220
214
DYNAMIC CONTROLS
210
240
USER CONTROLS
INFORMATION CONTROLLER
204
MESSAGES

FIG. 2

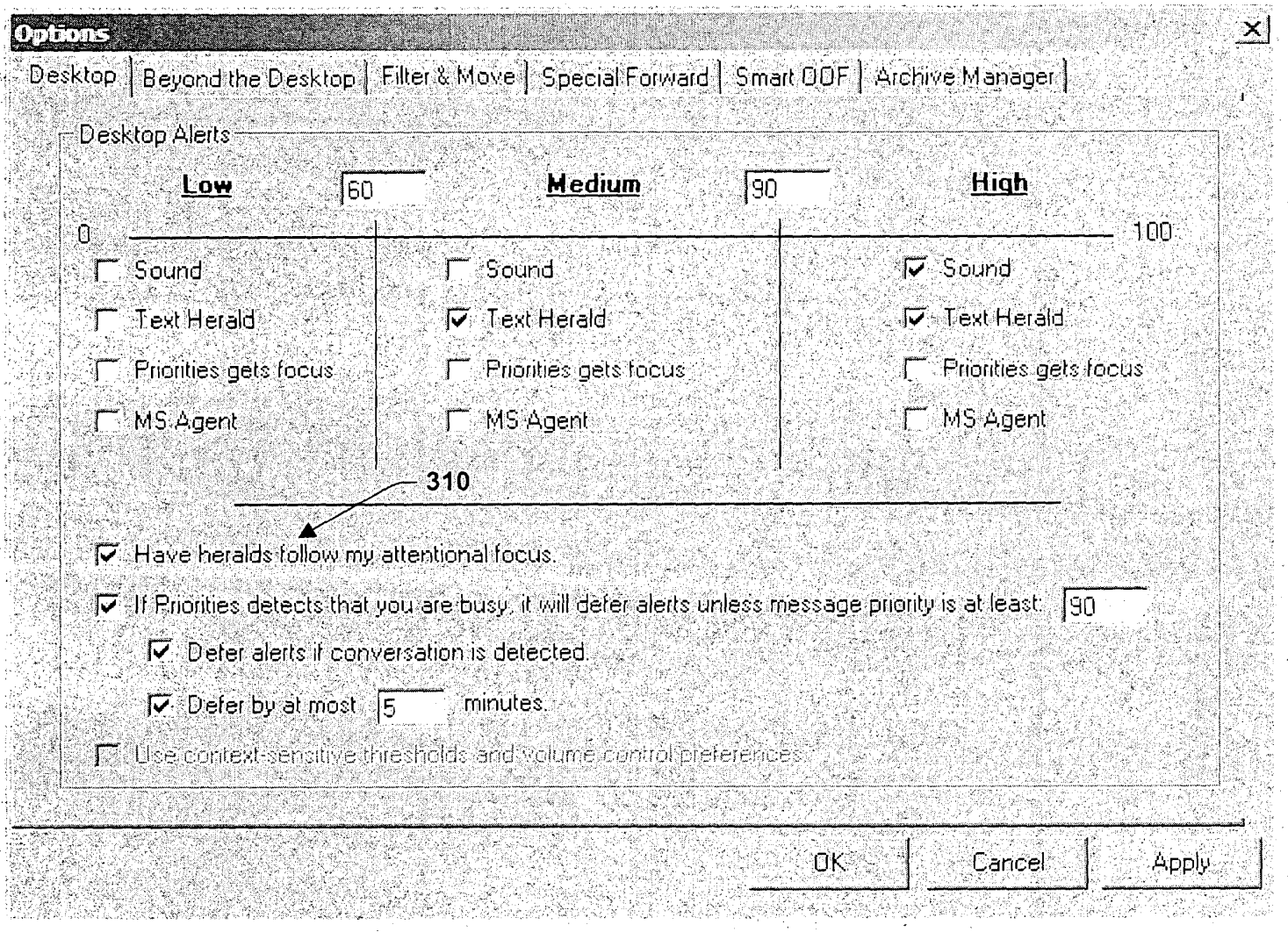

Options
300
Desktop
Beyond the Desktop
Filter & Move
Special Forward
Smart OOF
Archive Manager
Desktop Alerts
Low
60
Medium
90
High
0
100
Sound
Text Herald
Priorities gets focus
MS Agent
Sound
Text Herald
Priorities gets focus
MS Agent
Sound
Text Herald
Priorities gets focus
MS Agent
310
Have heralds follow my attentional focus.
If Priorities detects that you are busy, it will defer alerts unless message priority is at least:
90
Defer alerts if conversation is detected.
Defer by at most
5
minutes.
Use context-sensitive thresholds and volume control preferences.
OK
Cancel
Apply

FIG. 3

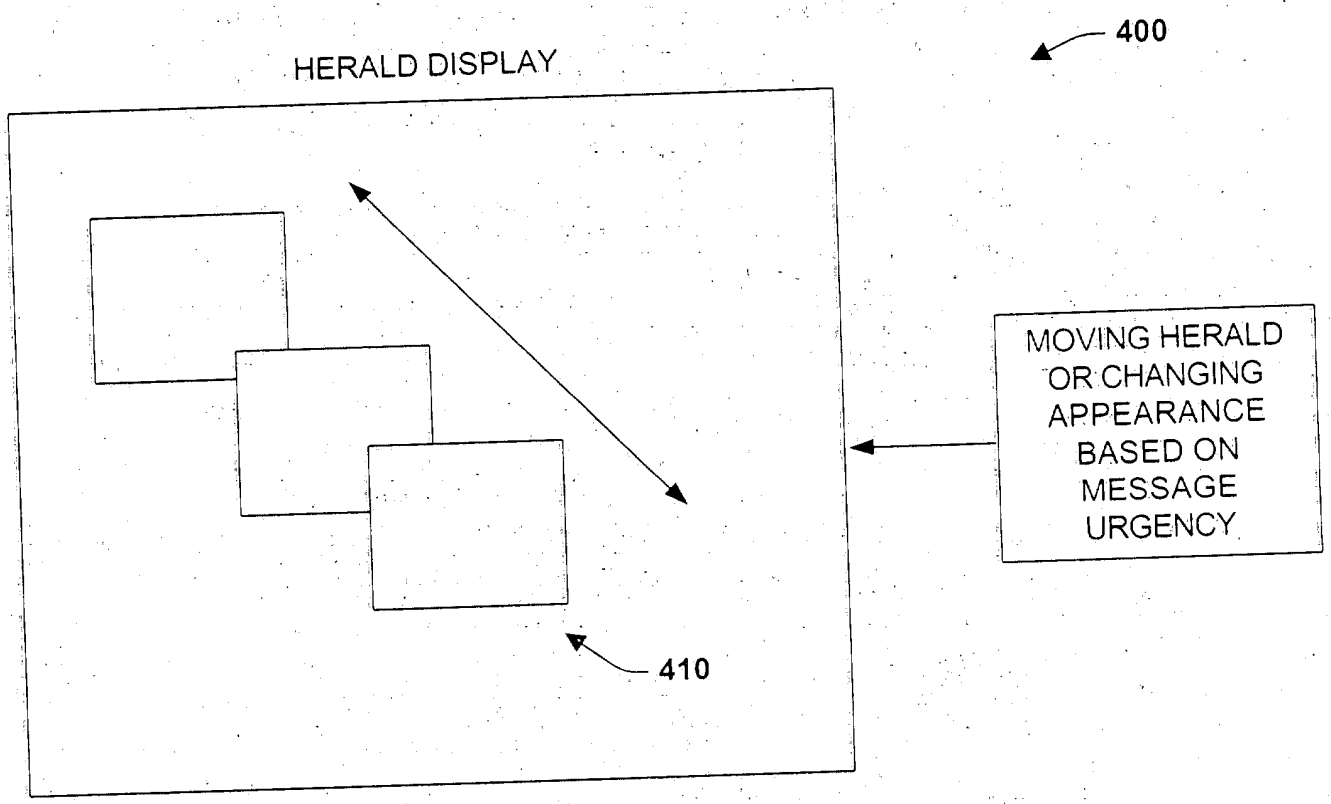

400
HERALD DISPLAY
MOVING HERALD OR CHANGING APPEARANCE BASED ON MESSAGE URGENCY
410

FIG. 4

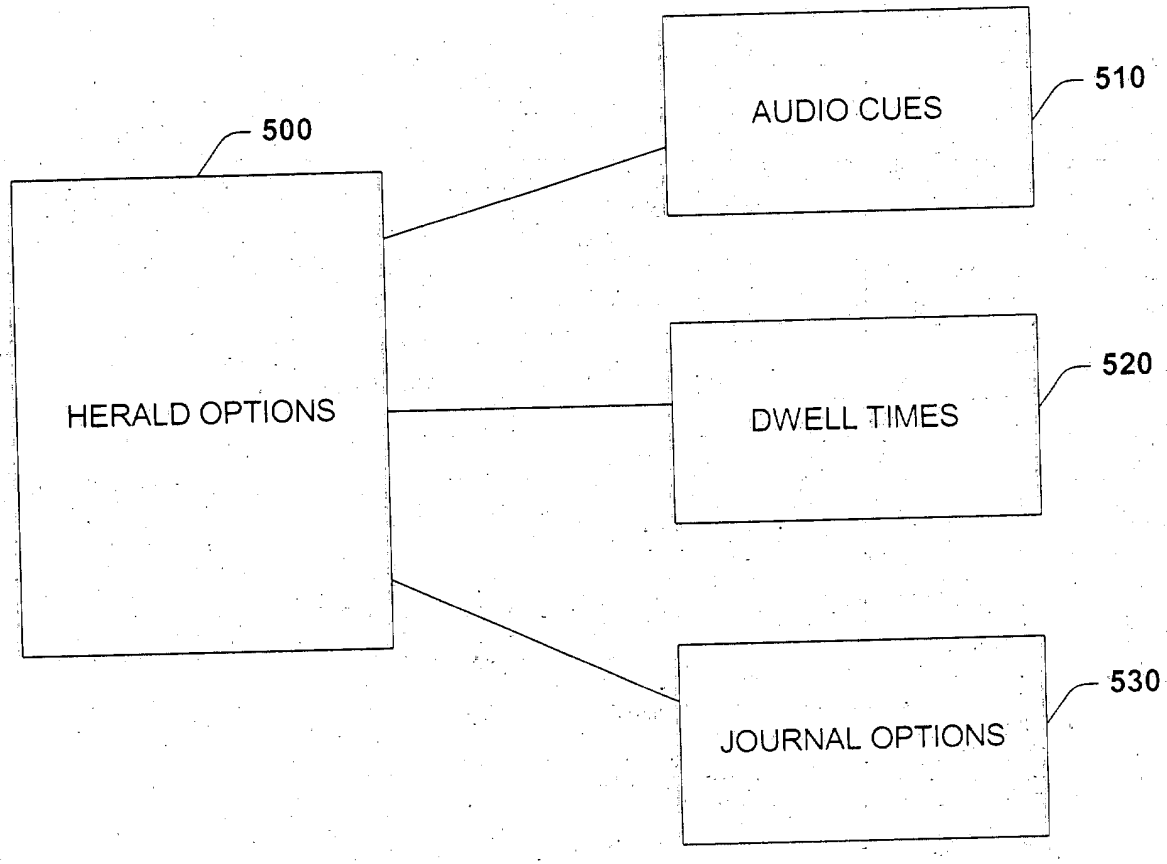

500
HERALD OPTIONS
AUDIO CUES
510
DWELL TIMES
520
JOURNAL OPTIONS
530

FIG. 5

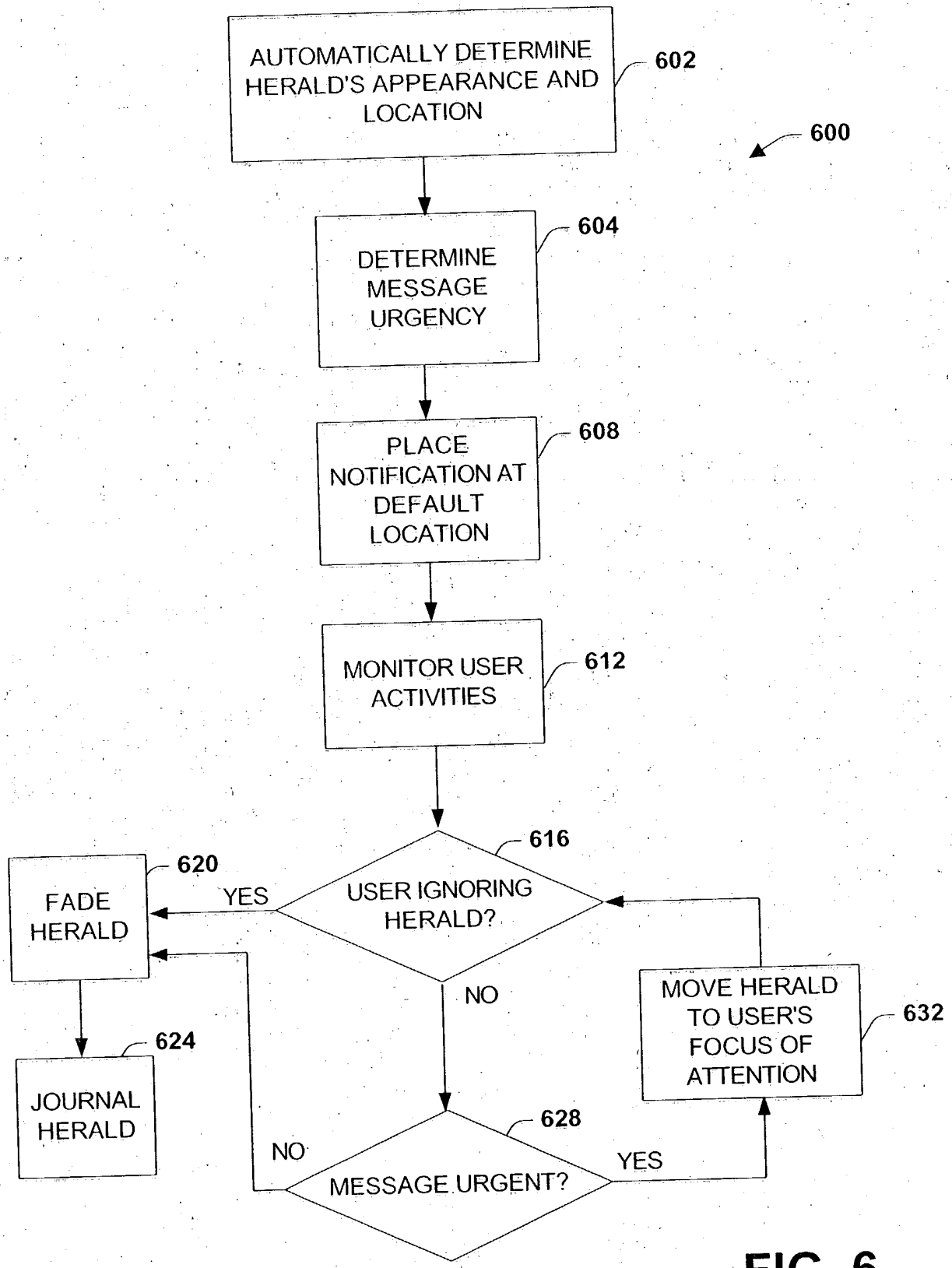

AUTOMATICALLY DETERMINE HERALD'S APPEARANCE AND LOCATION
602
600
DETERMINE MESSAGE URGENCY
604
PLACE NOTIFICATION AT DEFAULT LOCATION
608
MONITOR USER ACTIVITIES
612
USER IGNORING HERALD?
616
YES
FADE HERALD
620
NO
JOURNAL HERALD
624
MOVE HERALD TO USER'S FOCUS OF ATTENTION
632
MESSAGE URGENT?
628
NO
YES

FIG. 6

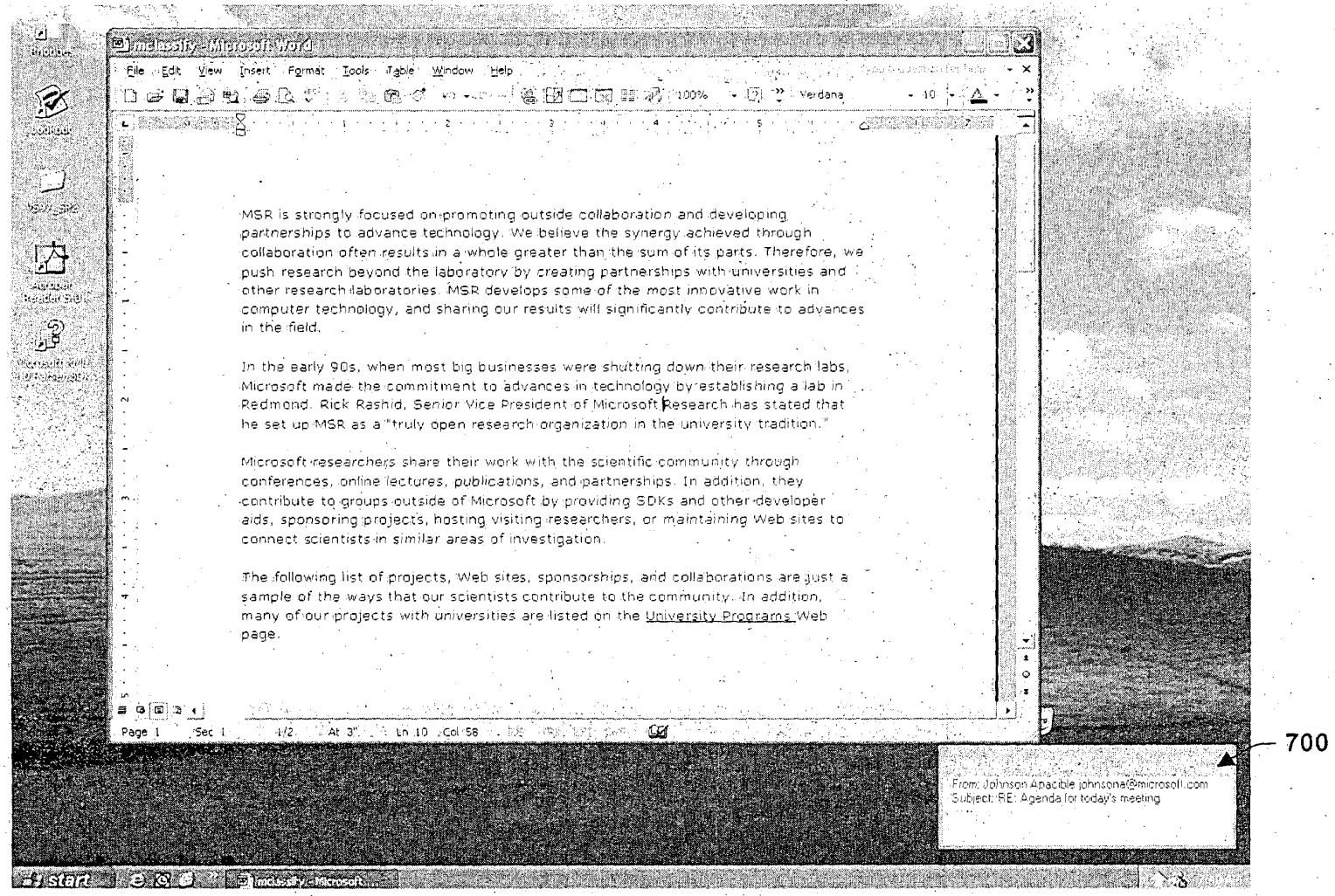
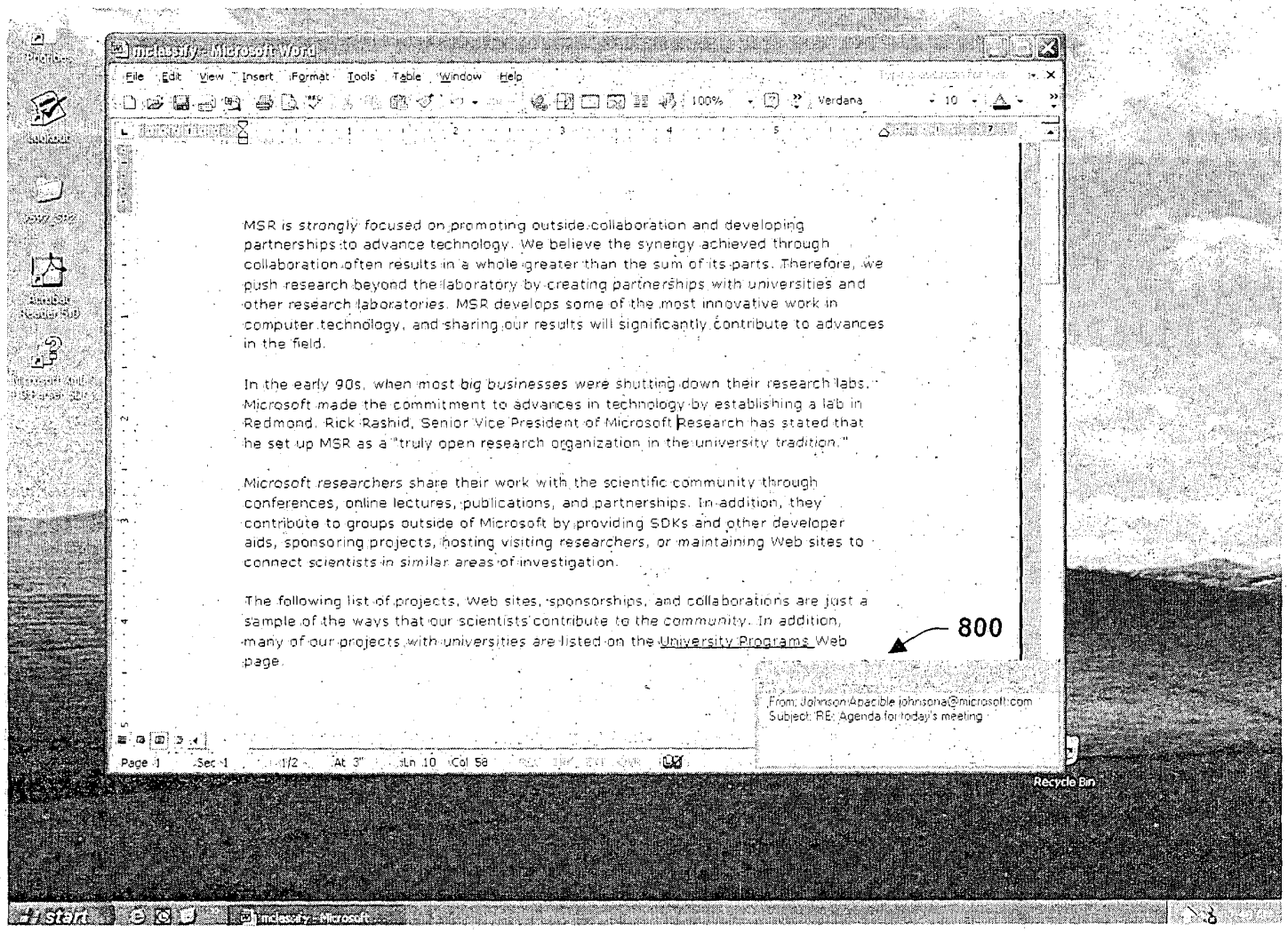

mcbastfy - Microsoft Word
File Edit View Insert Format Tools Table Window Help
MSR is strongly focused on promoting outside collaboration and developing partnerships to advance technology. We believe the synergy achieved through collaboration often results in a whole greater than the sum of its parts. Therefore, we push research beyond the laboratory by creating partnerships with universities and other research laboratories. MSR develops some of the most innovative work in computer technology, and sharing our results will significantly contribute to advances in the field.
In the early 90s, when most big businesses were shutting down their research labs, Microsoft made the commitment to advances in technology by establishing a lab in Redmond. Rick Rashid, Senior Vice President of Microsoft Research has stated that he set up MSR as a "truly open research organization in the university tradition."
Microsoft researchers share their work with the scientific community through conferences, online lectures, publications, and partnerships. In addition, they contribute to groups outside of Microsoft by providing SDKs and other developer aids, sponsoring projects, hosting visiting researchers, or maintaining Web sites to connect scientists in similar areas of investigation.
The following list of projects, Web sites, sponsorships, and collaborations are just a sample of the ways that our scientists contribute to the community. In addition, many of our projects with universities are listed on the University Programs Web page.
Page 1 Sec 1 1/2 At 3" Ln 10 Col 58
From: Johnson Apacible johnsona@microsoft.com
Subject: RE: Agenda for today's meeting
start
700

FIG. 7


mdasstfy - Microsoft Word
File Edit View Insert Format Tools Table Window Help
Verdana
MSR is strongly focused on promoting outside collaboration and developing partnerships to advance technology. We believe the synergy achieved through collaboration often results in a whole greater than the sum of its parts. Therefore, we push research beyond the laboratory by creating partnerships with universities and other research laboratories. MSR develops some of the most innovative work in computer technology, and sharing our results will significantly contribute to advances in the field.
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The following list of projects, Web sites, sponsorships, and collaborations are just a sample of the ways that our scientists contribute to the community. In addition, many of our projects with universities are listed on the University Programs Web page.
800
From: Johnson Apacible johnsona@microsoft.com
Subject: RE: Agenda for today's meeting
Page 1 Sec 1 1/2 At 3" Ln 10 Col 58
Recycle Bin
Start

FIG. 8

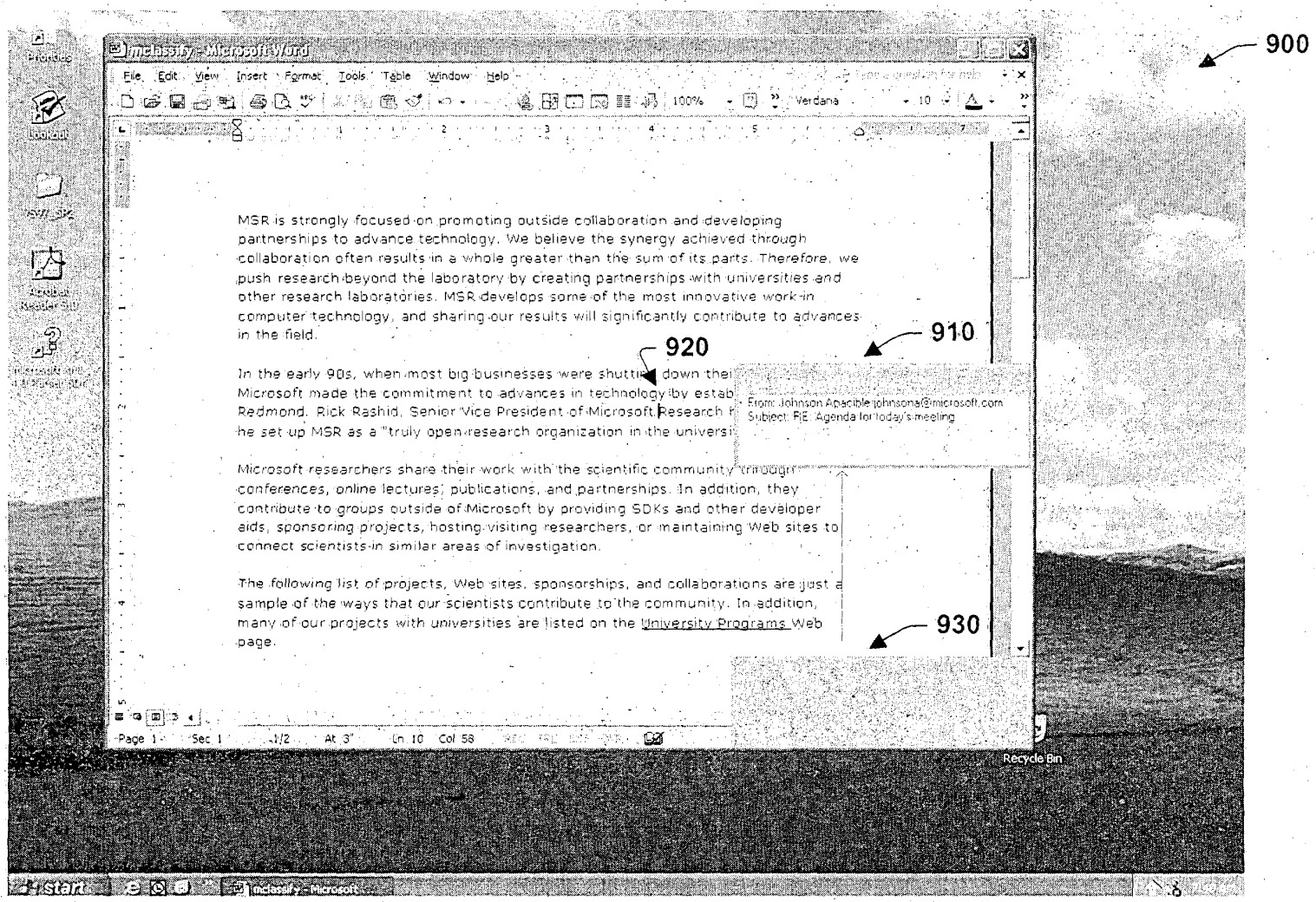

900
910
920
930
mclassify - Microsoft Word
File Edit View Insert Format Tools Table Window Help
MSR is strongly focused on promoting outside collaboration and developing partnerships to advance technology. We believe the synergy achieved through collaboration often results in a whole greater than the sum of its parts. Therefore, we push research beyond the laboratory by creating partnerships with universities and other research laboratories. MSR develops some of the most innovative work in computer technology, and sharing our results will significantly contribute to advances in the field.
In the early 90s, when most big businesses were shutting down their
Microsoft made the commitment to advances in technology by estab
Redmond. Rick Rashid, Senior Vice President of Microsoft Research
he set up MSR as a "truly open research organization in the universi
From: Johnson Apacible [johnsona@microsoft.com]
Subject: RE: Agenda for today's meeting
Microsoft researchers share their work with the scientific community through conferences, online lectures, publications, and partnerships. In addition, they contribute to groups outside of Microsoft by providing SDKs and other developer aids, sponsoring projects, hosting visiting researchers, or maintaining Web sites to connect scientists in similar areas of investigation.
The following list of projects, Web sites, sponsorships, and collaborations are just a sample of the ways that our scientists contribute to the community. In addition, many of our projects with universities are listed on the University Programs Web page.
Page 1 Sec 1 1/2 At 3" Ln 10 Col 58
Recycle Bin
start

FIG. 9

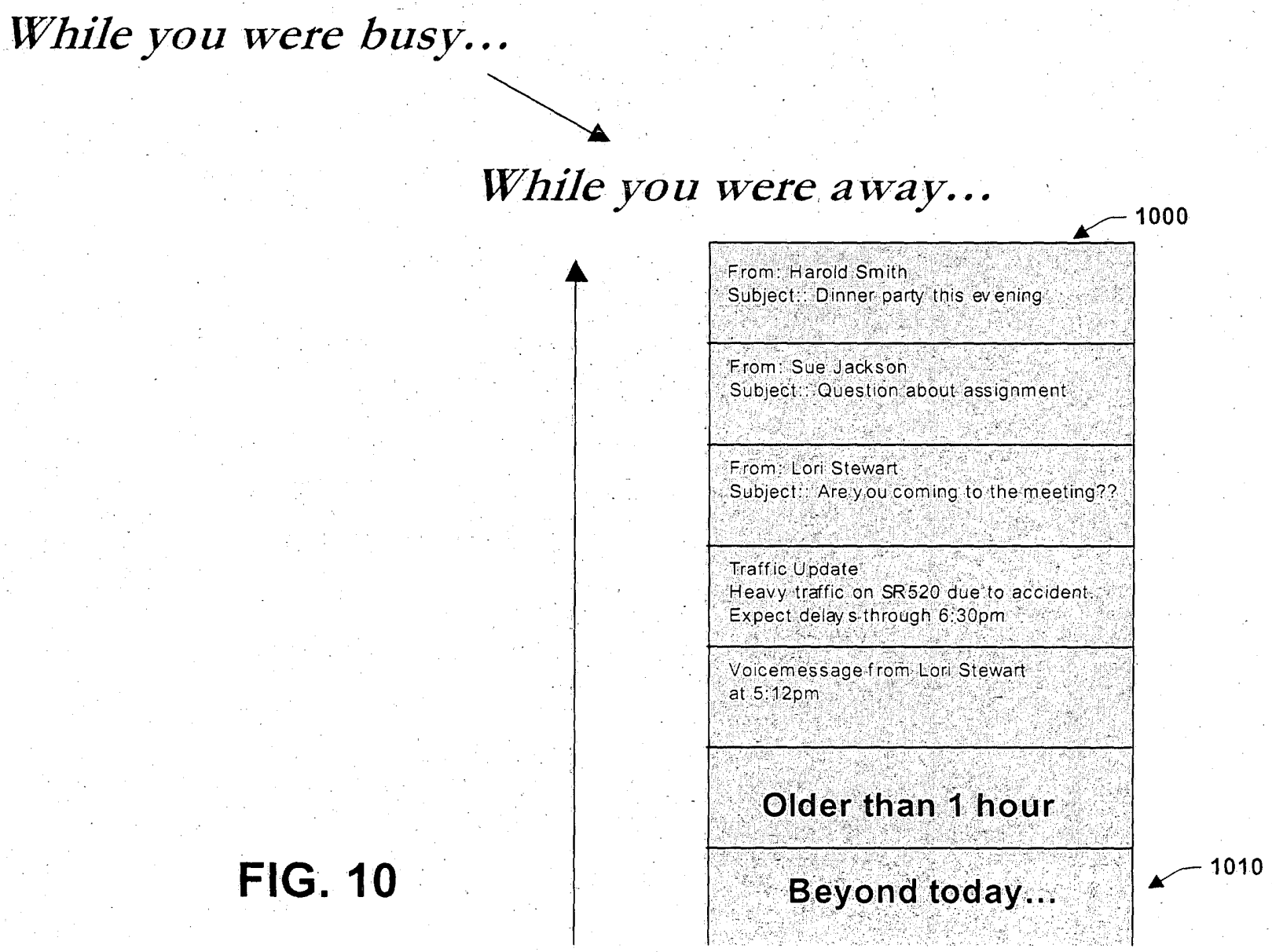

While you were busy...
While you were away...
1000
From: Harold Smith
Subject:: Dinner party this evening
From: Sue Jackson
Subject:: Question about assignment
From: Lori Stewart
Subject:: Are you coming to the meeting??
Traffic Update
Heavy traffic on SR520 due to accident.
Expect delays through 6:30pm
Voicemessage from Lori Stewart
at 5:12pm
Older than 1 hour
Beyond today...
1010

FIG. 10

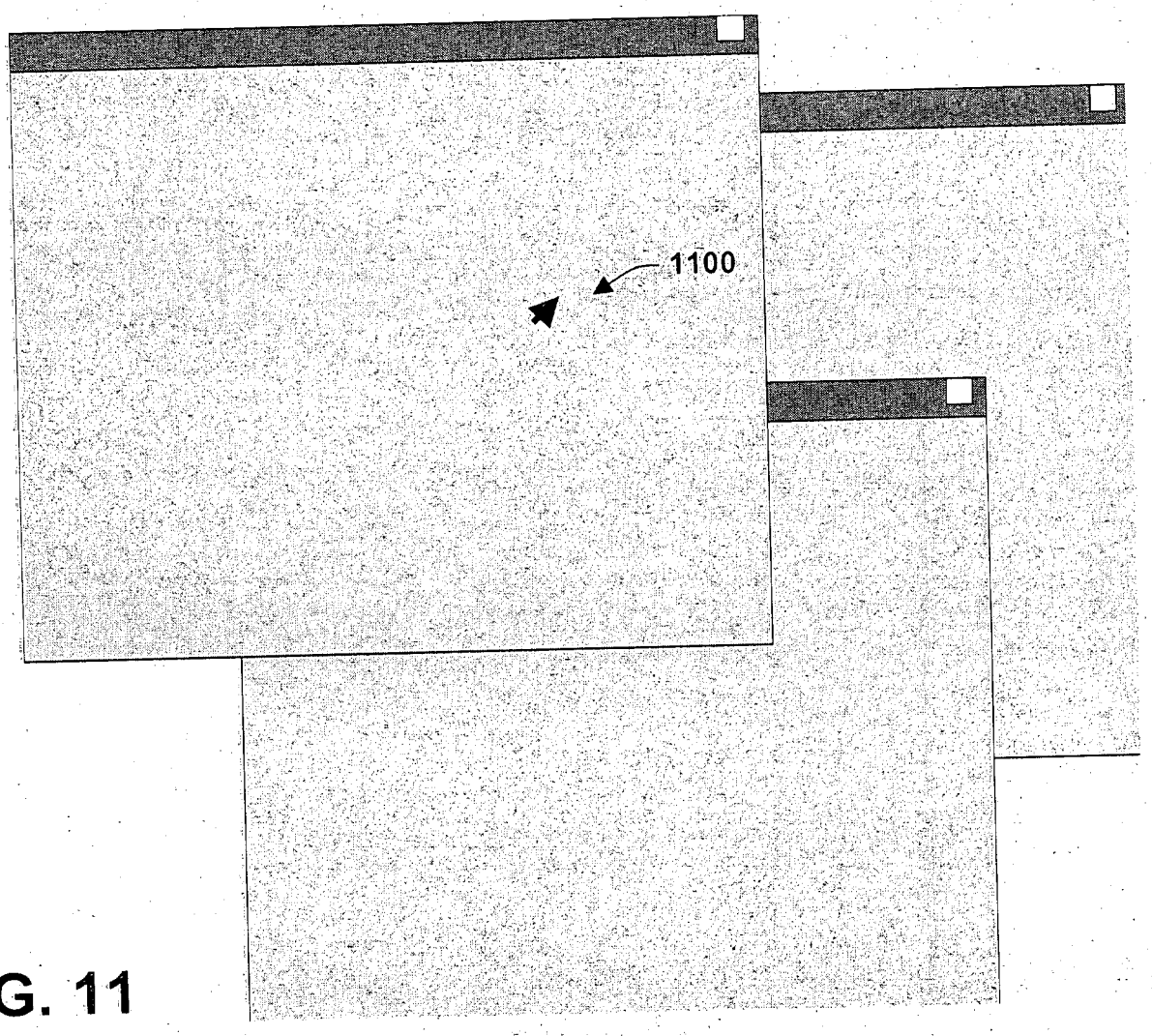


FIG. 11

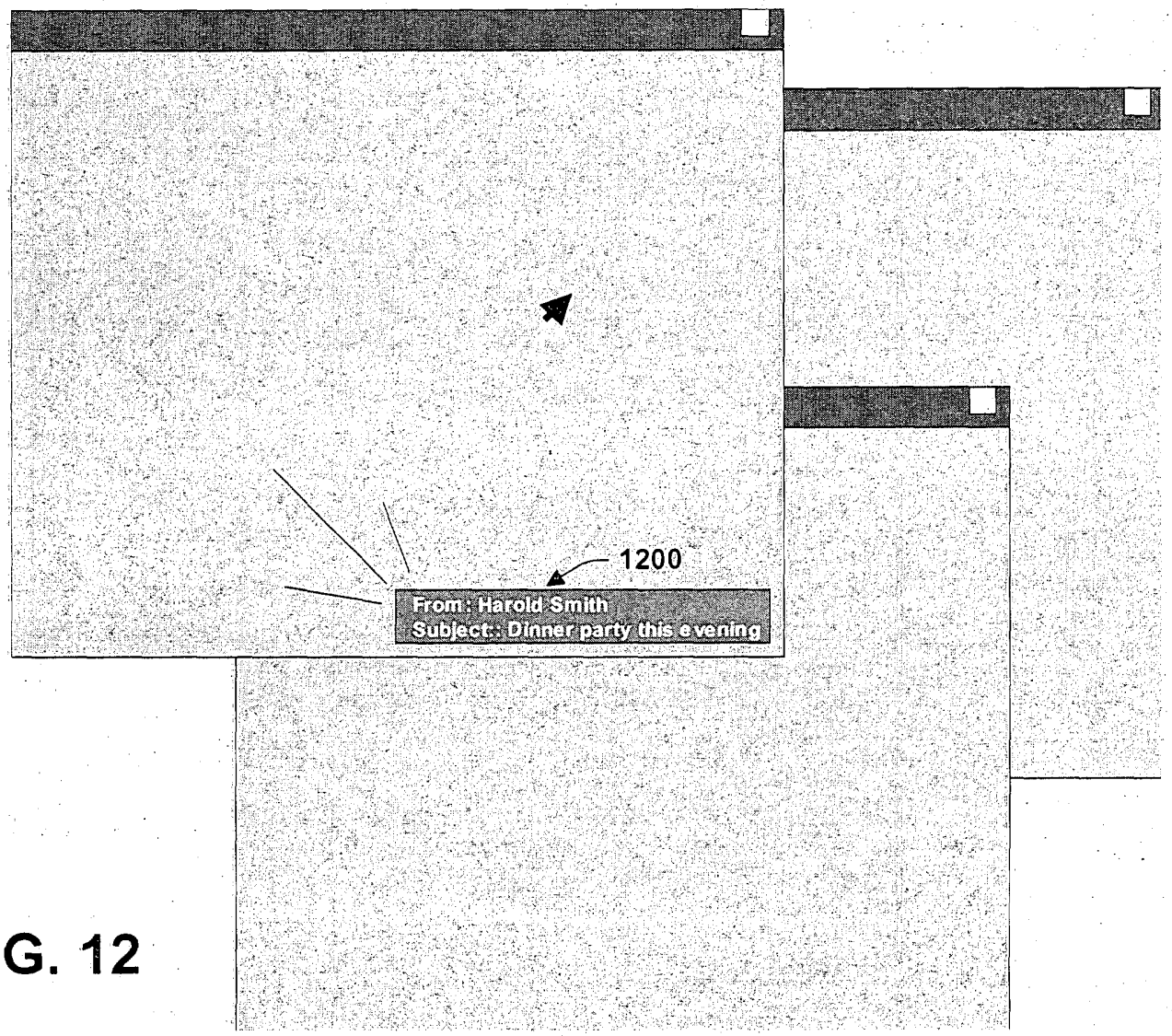


FIG. 12

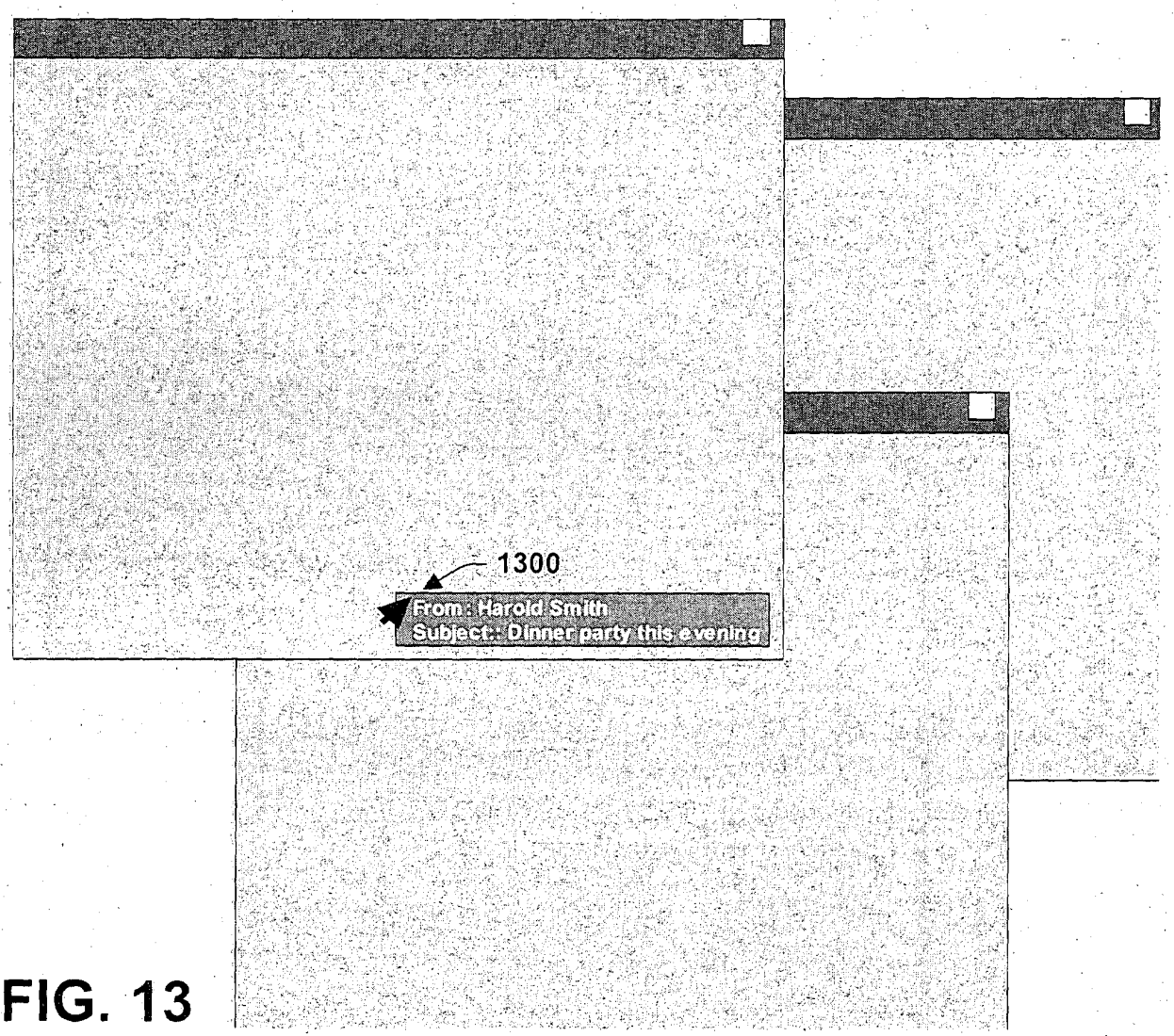


FIG. 13

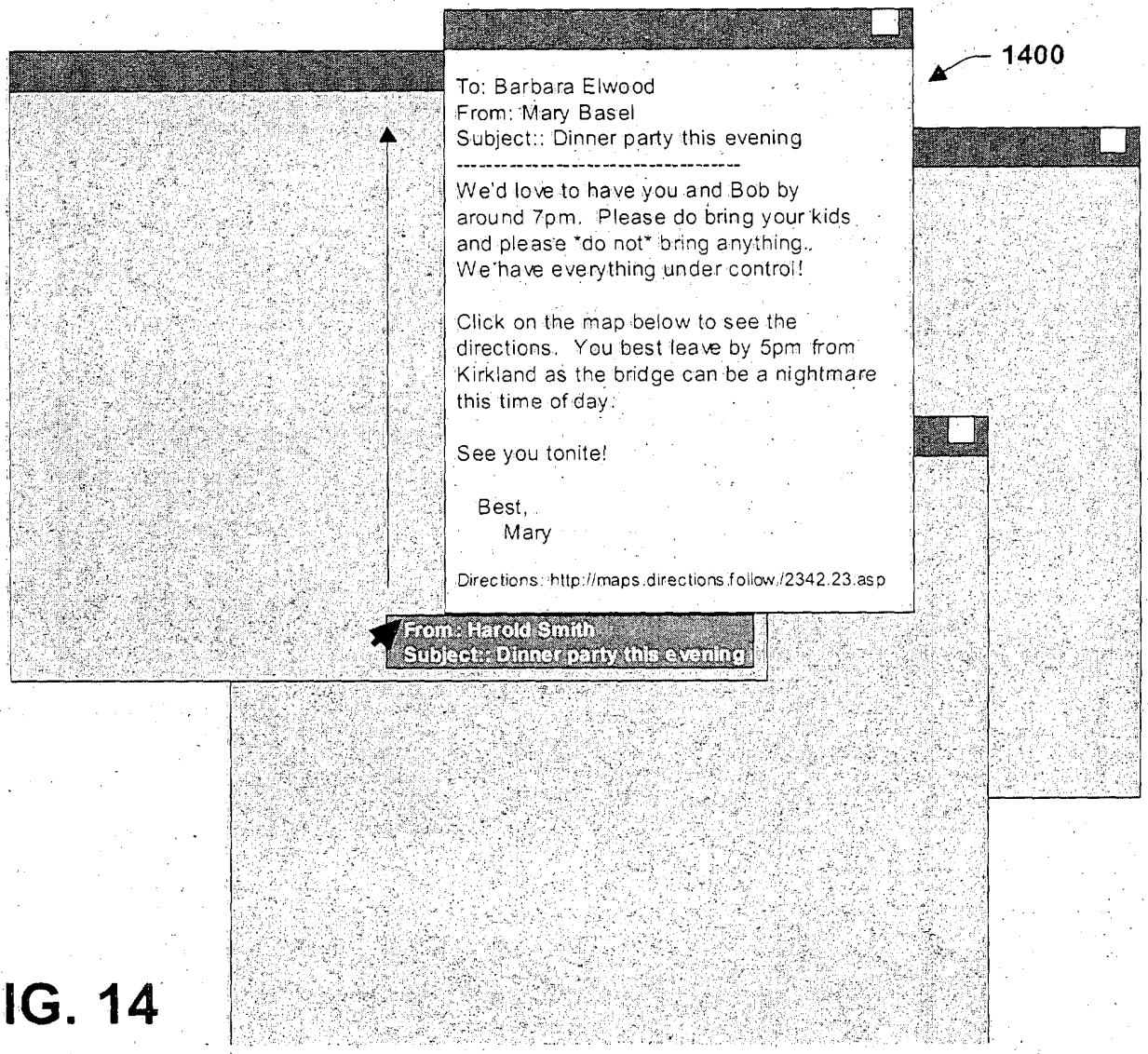

1400
To: Barbara Elwood
From: Mary Basel
Subject:: Dinner party this evening
We'd love to have you and Bob by around 7pm. Please do bring your kids and please "do not" bring anything.. We have everything under control!
Click on the map below to see the directions. You best leave by 5pm from Kirkland as the bridge can be a nightmare this time of day.
See you tonite!
Best,
Mary
Directions: http://maps.directions.follow/2342.23.asp
From: Harold Smith
Subject:: Dinner party this evening

FIG. 14

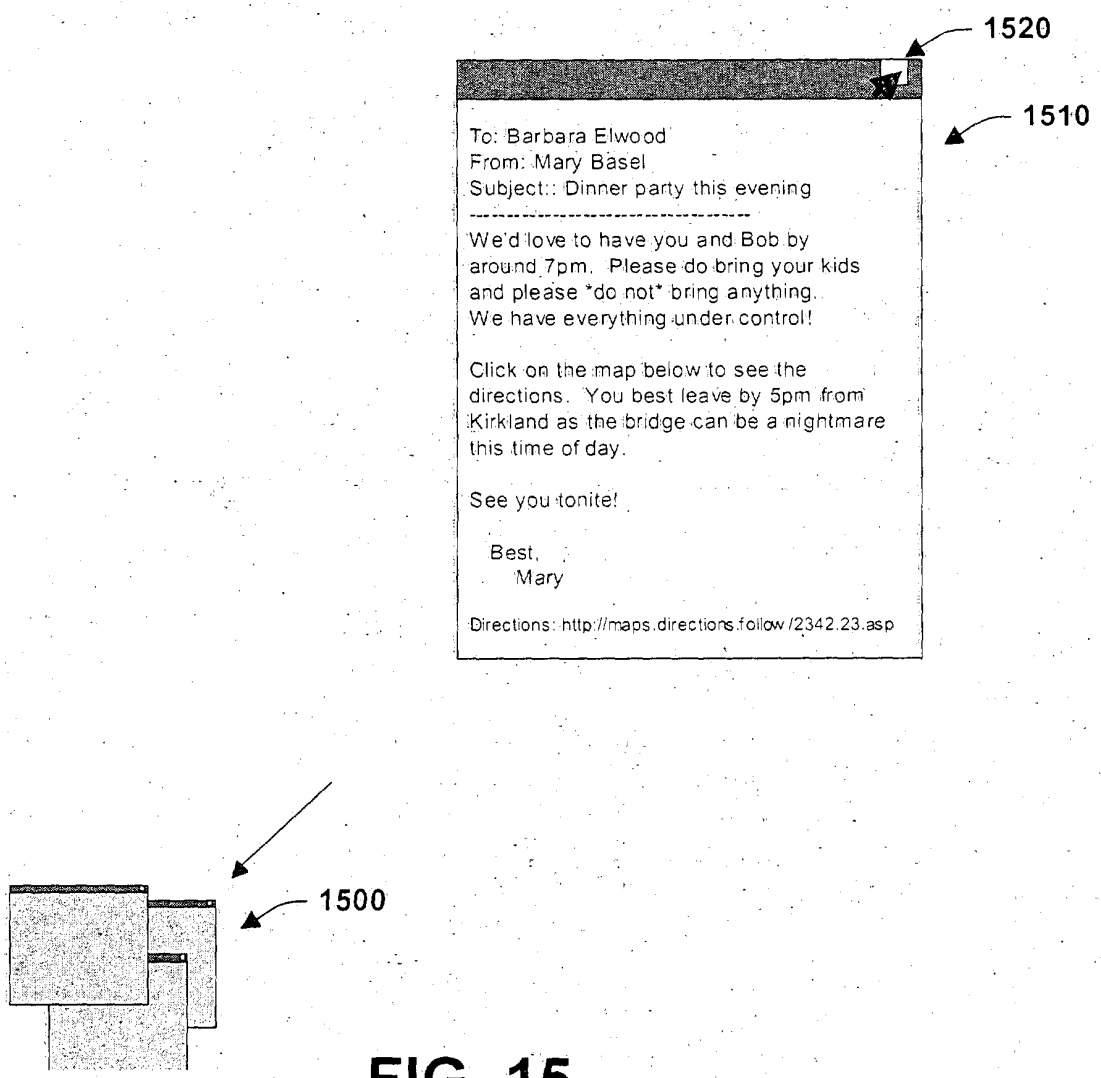

1520
1510
To: Barbara Elwood
From: Mary Basel
Subject:: Dinner party this evening
We'd love to have you and Bob by around 7pm. Please do bring your kids and please *do not* bring anything. We have everything under control!
Click on the map below to see the directions. You best leave by 5pm from Kirkland as the bridge can be a nightmare this time of day.
See you tonite!
Best,
Mary
Directions: http://maps.directions.follow/2342.23.asp
1500

FIG. 15

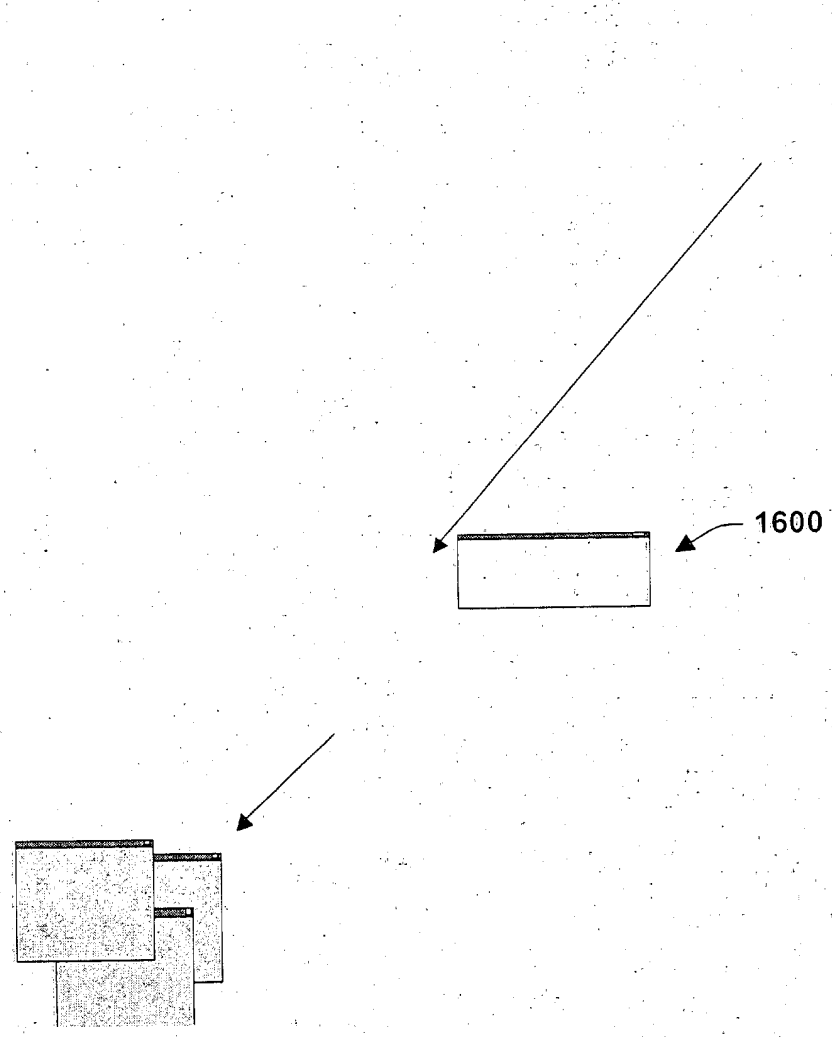


FIG. 16

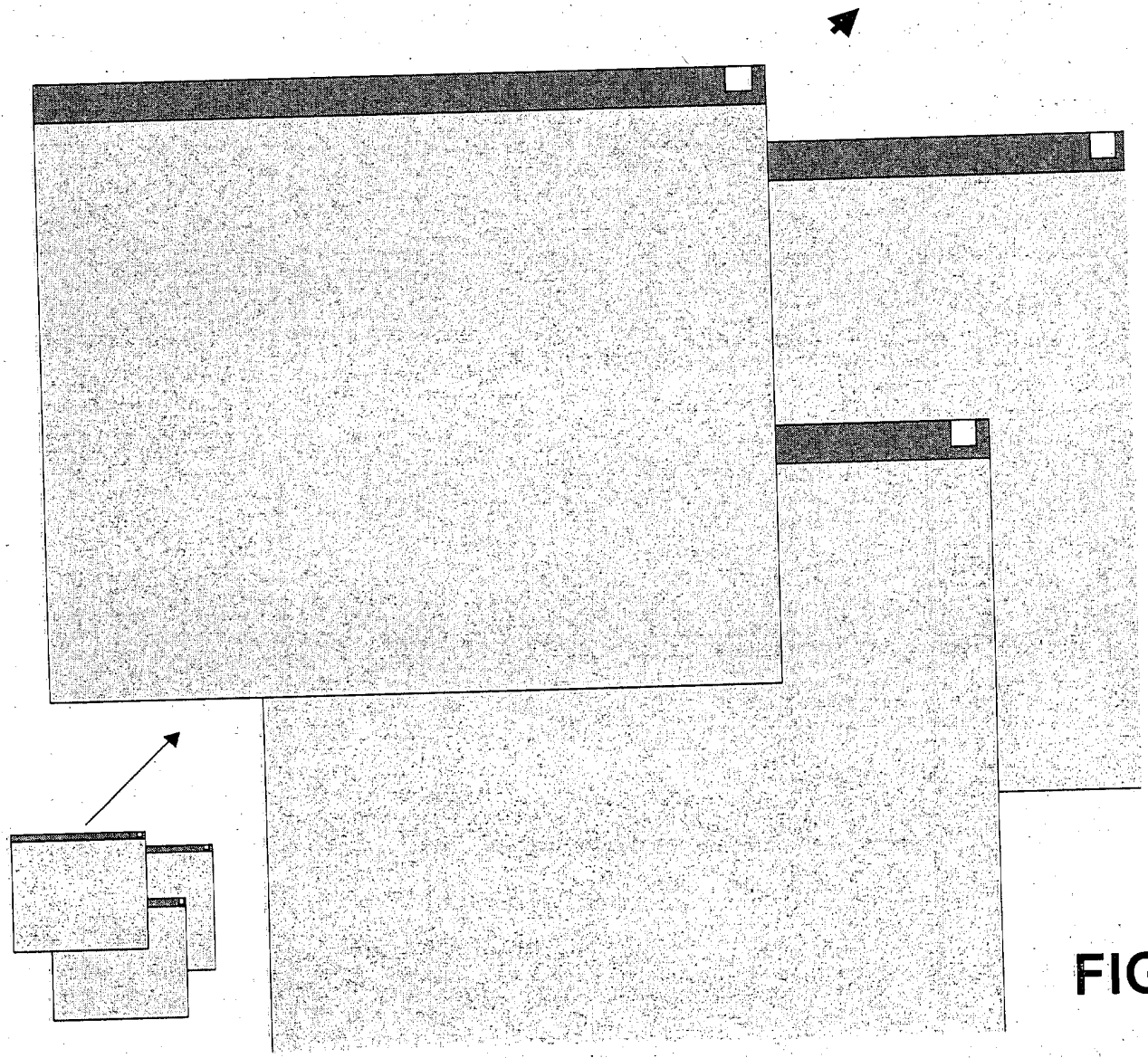


FIG. 17

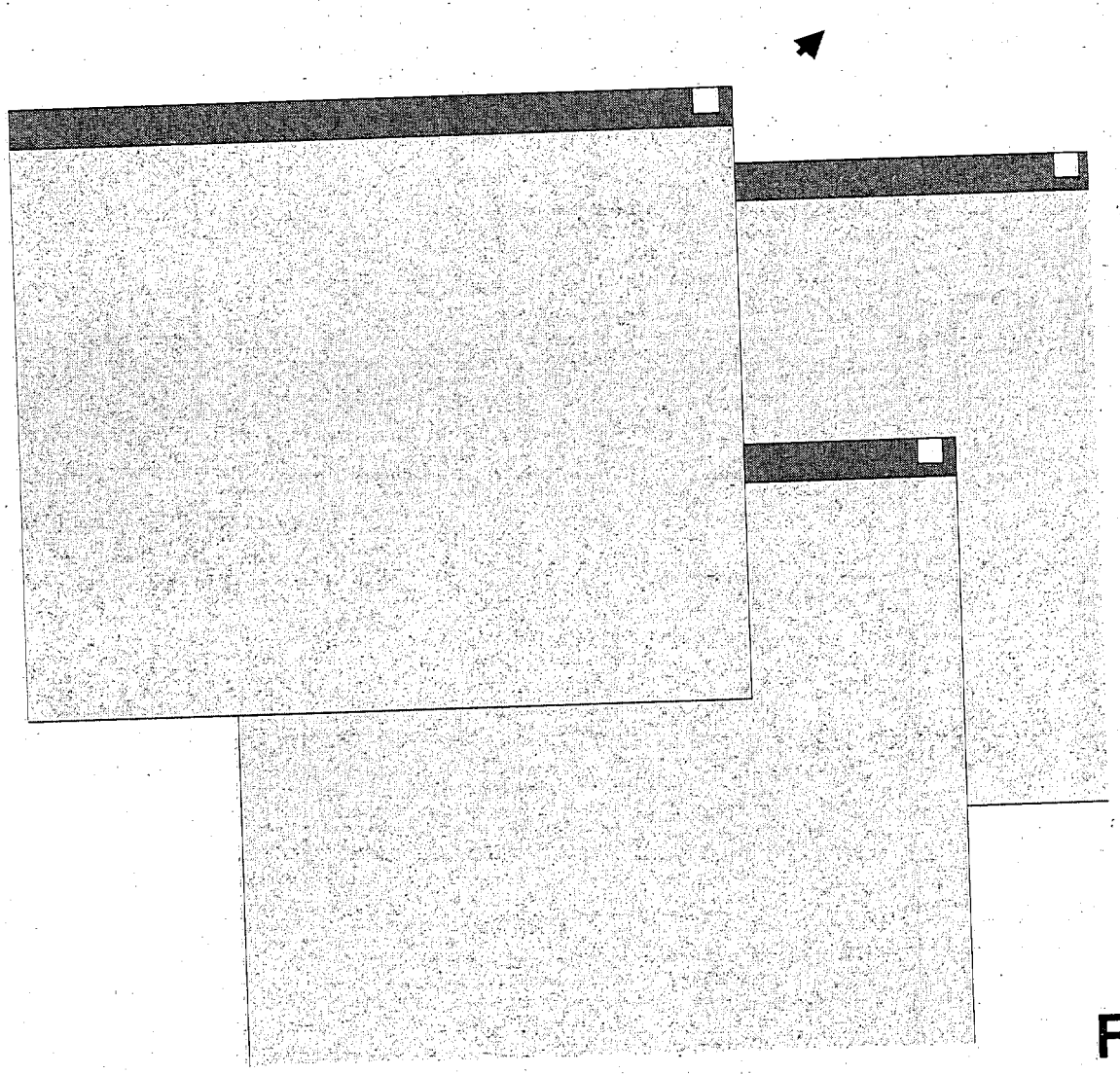


FIG. 18

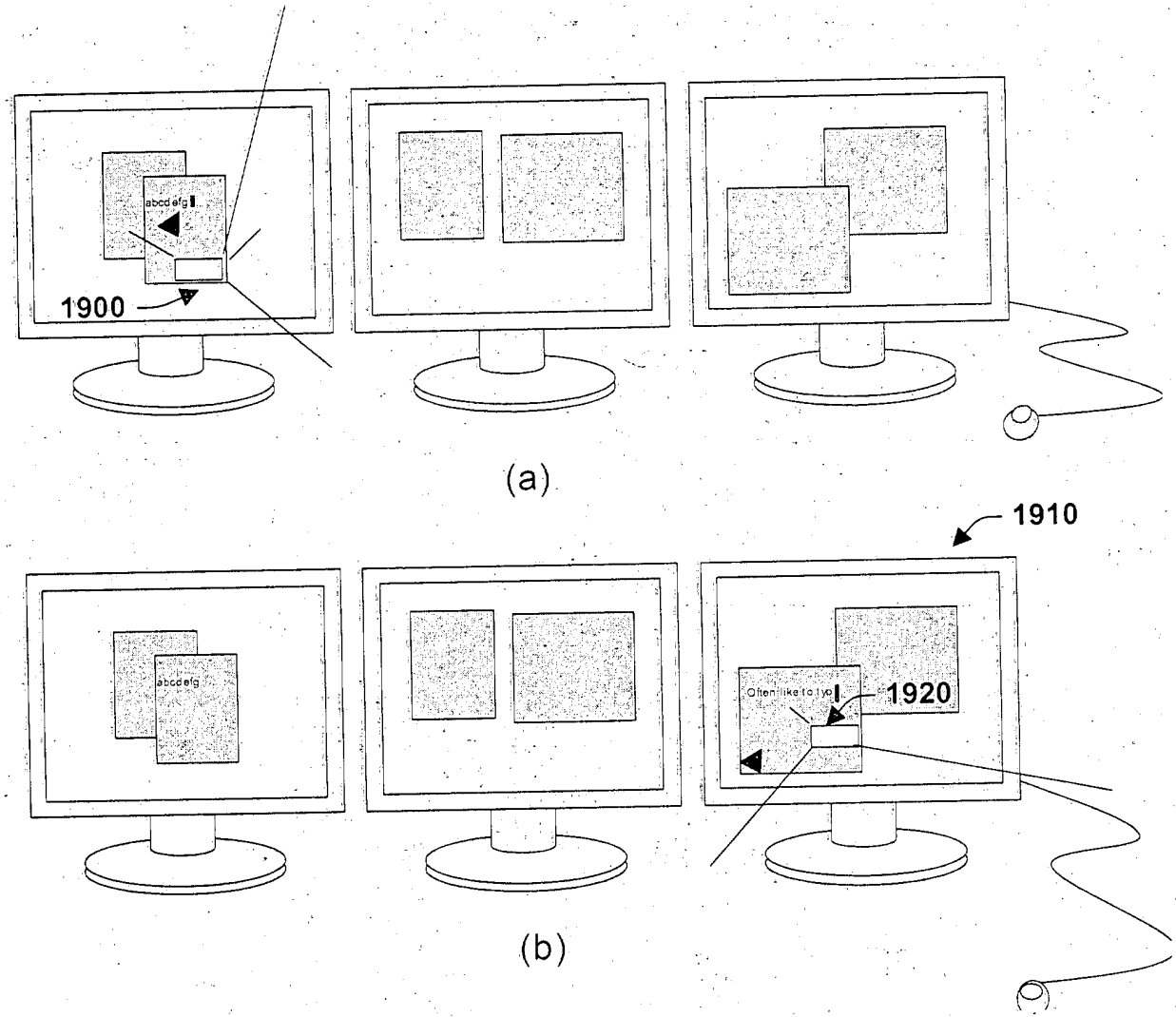


FIG. 19

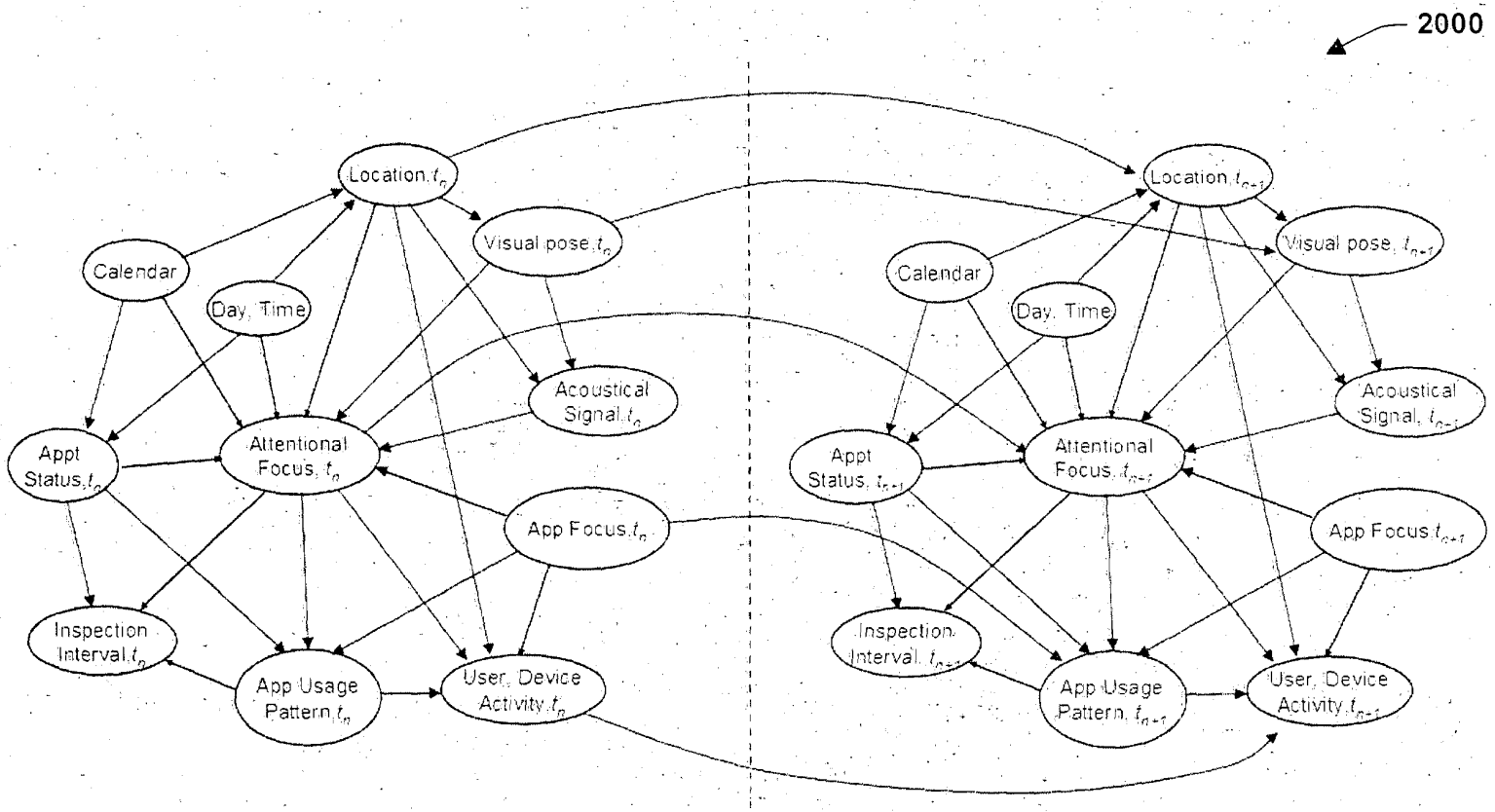

2000
Location, t_n
Visual pose, t_n
Calendar
Day, Time
Acoustical Signal, t_n
Appt Status, t_n
Attentional Focus, t_n
App Focus, t_n
Inspection Interval, t_n
App Usage Pattern, t_n
User, Device Activity, t_n
Location, t_{n-1}
Visual pose, t_{n-1}
Calendar
Day, Time
Acoustical Signal, t_{n-1}
Appt Status, t_{n-1}
Attentional Focus, t_{n-1}
App Focus, t_{n-1}
Inspection Interval, t_{n-1}
App Usage Pattern, t_{n-1}
User, Device Activity, t_{n-1}

FIG. 20

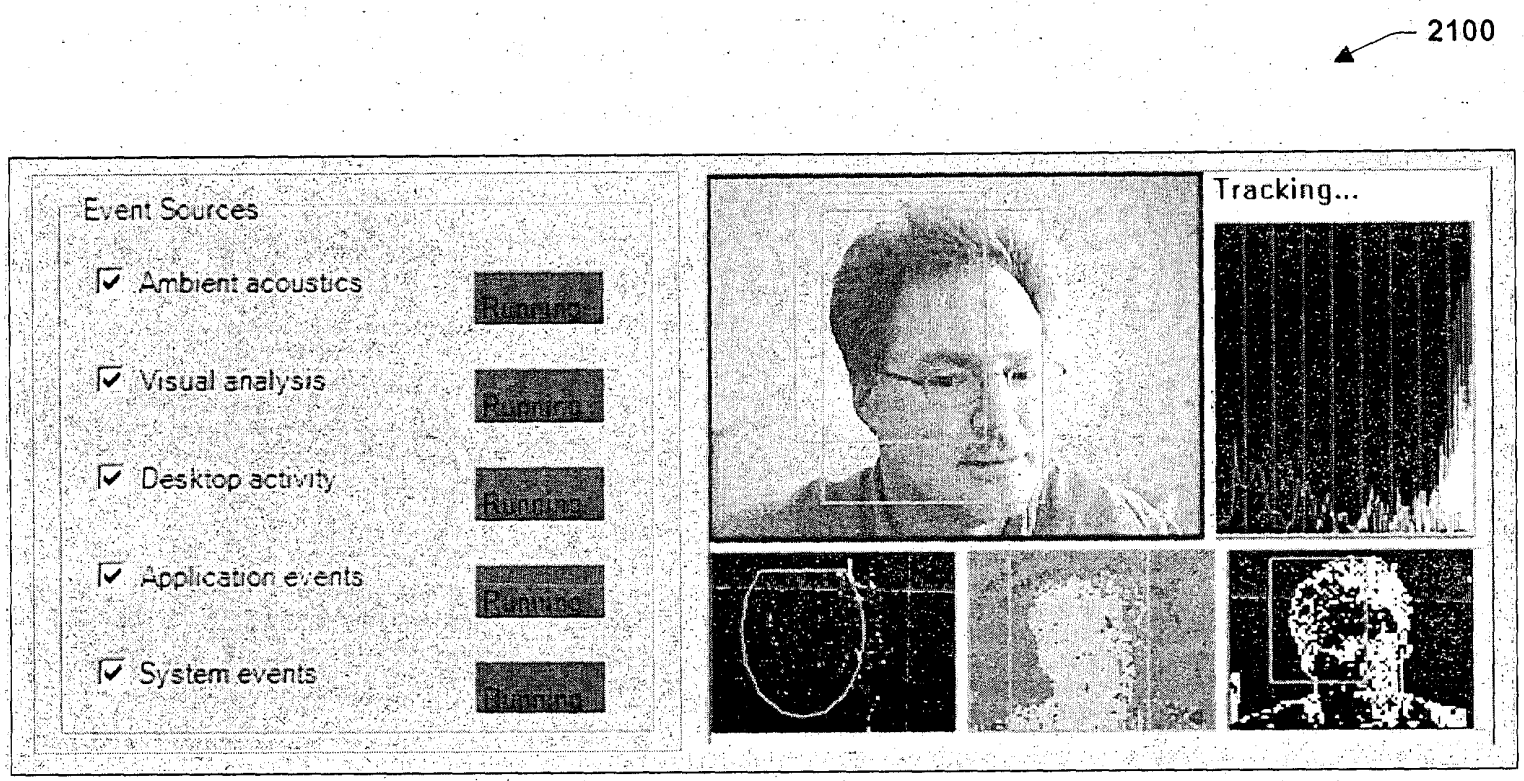
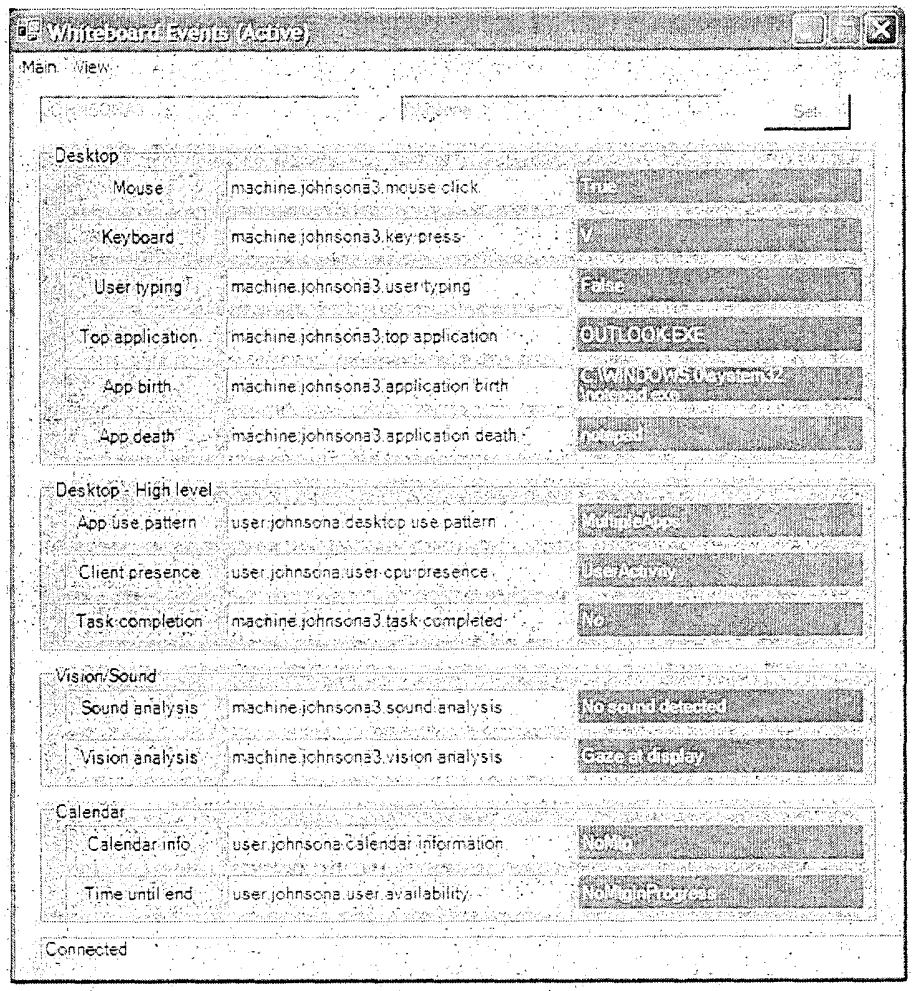

2100
Event Sources
Ambient acoustics
Visual analysis
Desktop activity
Application events
System events
Tracking...

FIG. 21


Whiteboard Events (Active)
Main
View
Set
Desktop
Mouse
machine.johnsona3.mouse click
Keyboard
machine.johnsona3.key press
V
User typing
machine.johnsona3.user typing
False
Top application
machine.johnsona3.top application
OUTLOOK.EXE
App birth
machine.johnsona3.application birth
App death
machine.johnsona3.application death
Desktop - High level
App use pattern
user.johnsona.desktop use pattern
Client presence
user.johnsona.user cpu presence
UserActive
Task completion
machine.johnsona3.task completed
No
Vision/Sound
Sound analysis
machine.johnsona3.sound analysis
No sound detected
Vision analysis
machine.johnsona3.vision analysis
Gaze at display
Calendar
Calendar info
user.johnsona.calendar information
Time until end
user.johnsona.user availability
Connected

2200

FIG. 22

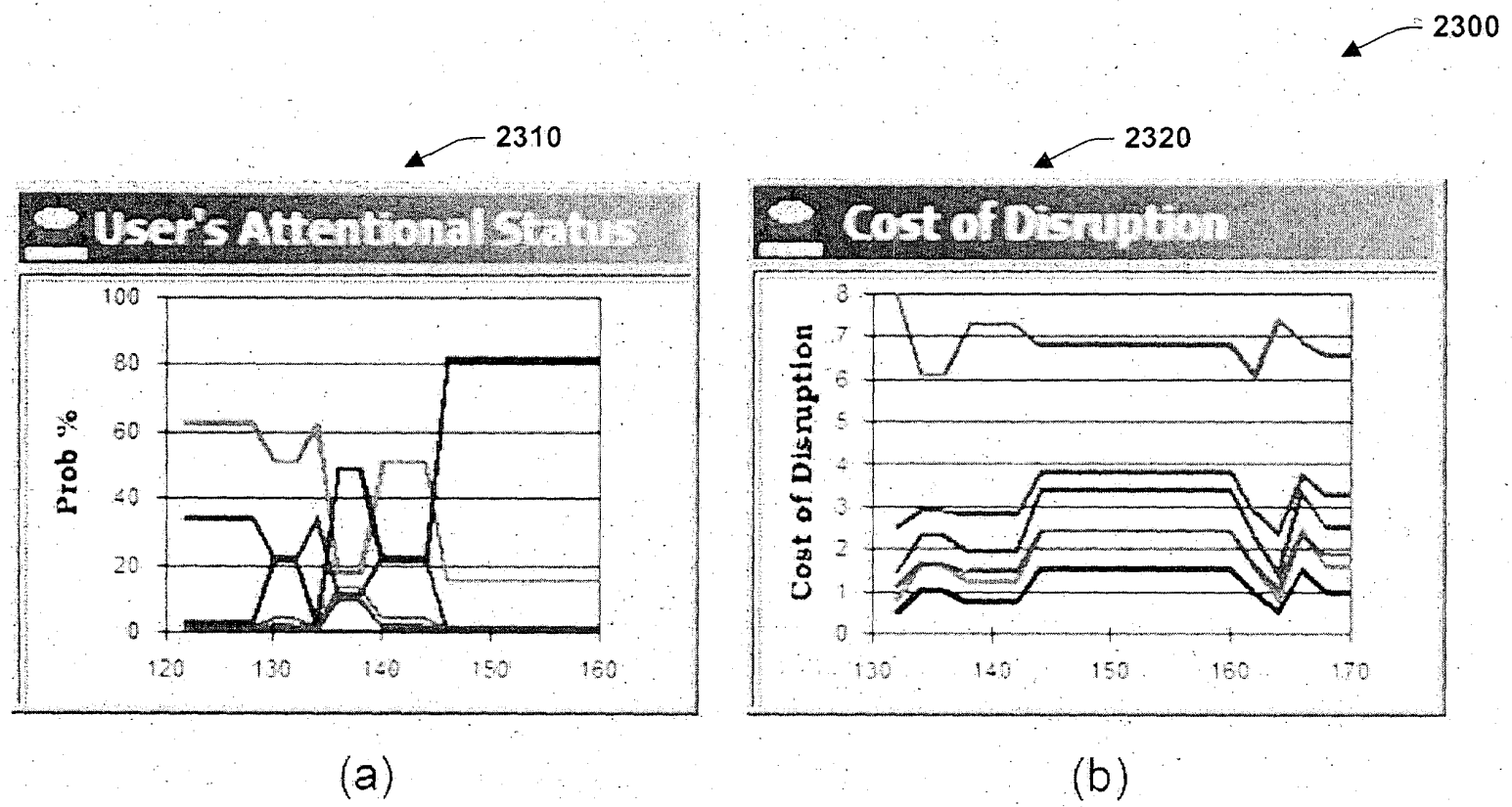

2300
2310
2320
User's Attentional Status
Prob %
100
80
60
40
20
0
120
130
140
150
160
Cost of Disruption
Cost of Disruption
8
7
6
5
4
3
2
1
0
130
140
150
160
170
(a)
(b)

FIG. 23

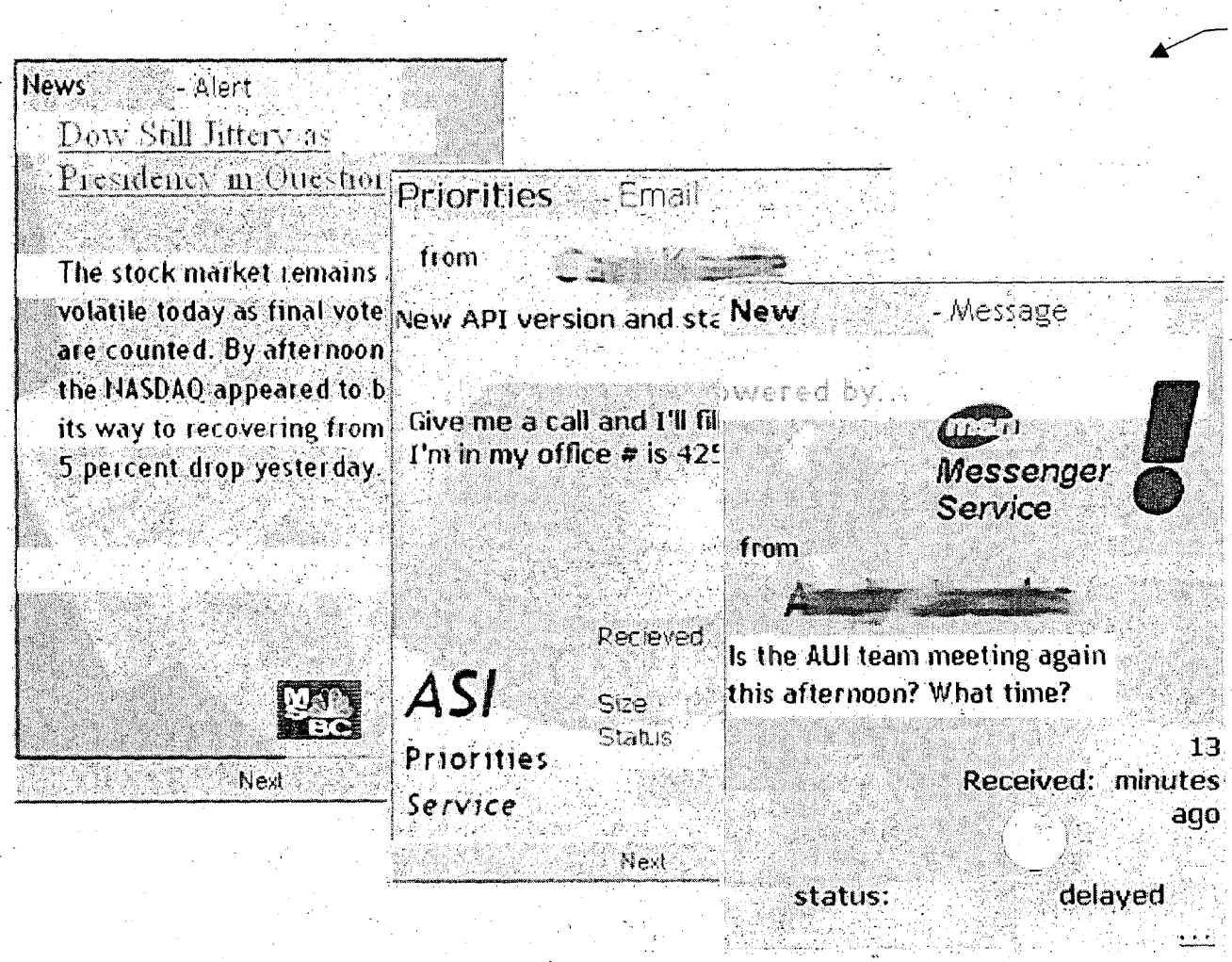

2400
News - Alert
Dow Still Jittery as
Presidency in Questio
The stock market remains
volatile today as final vote
are counted. By afternoon
the NASDAQ appeared to b
its way to recovering from
5 percent drop yesterday.
Next
Priorities - Email
from
New API version and sta
Give me a call and I'll fil
I'm in my office # is 42
Recieved
Size
Status
ASI
Priorities
Service
Next
New - Message
owered by...
Messenger
Service
from
Is the AUI team meeting again
this afternoon? What time?
13
Received: minutes
ago
status: delayed

FIG. 24

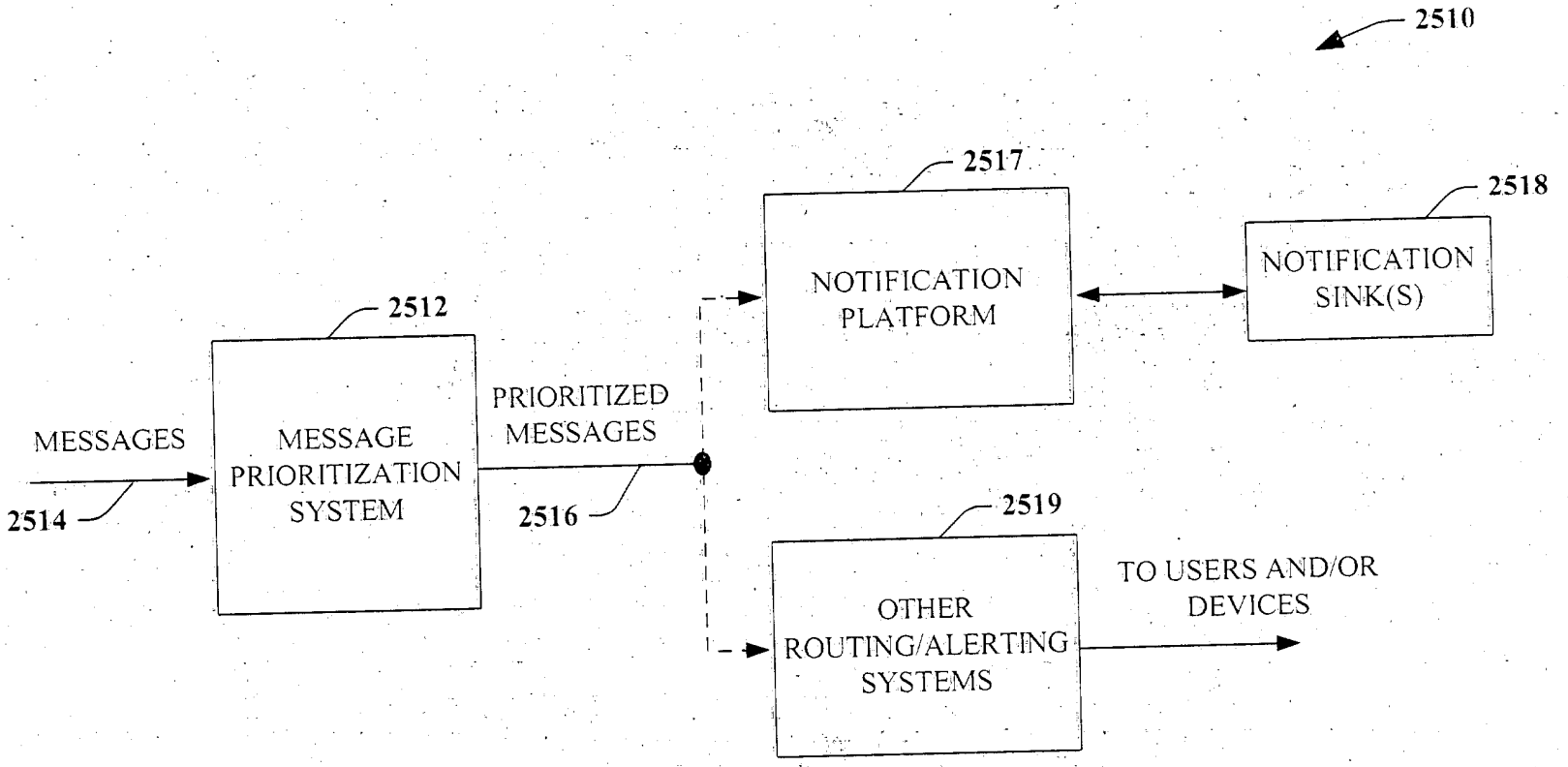

2510
2517
2518
NOTIFICATION PLATFORM
NOTIFICATION SINK(S)
2512
MESSAGES
MESSAGE PRIORITIZATION SYSTEM
PRIORITIZED MESSAGES
2514
2516
2519
OTHER ROUTING/ALERTING SYSTEMS
TO USERS AND/OR DEVICES

FIG. 25

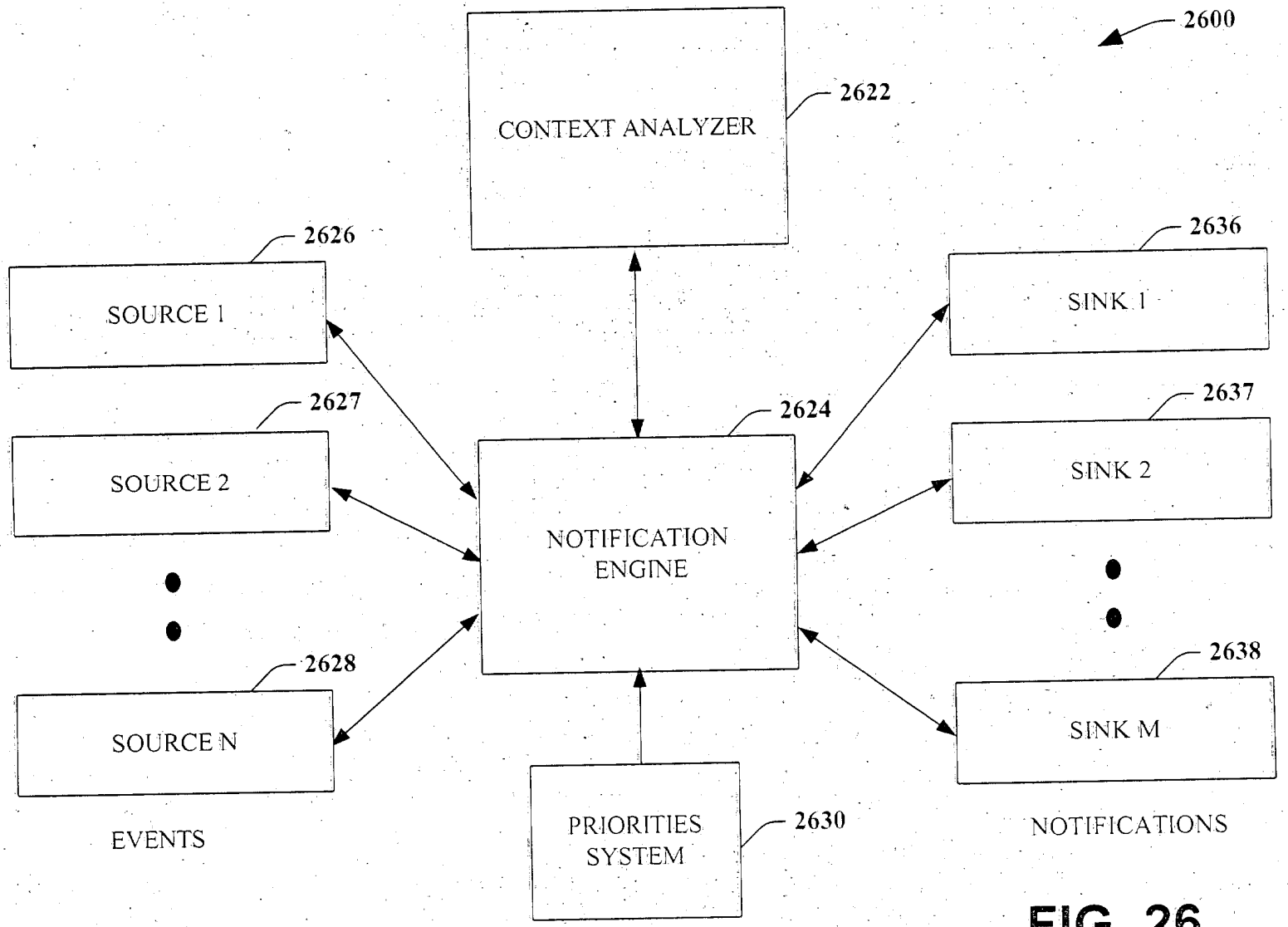

2600
CONTEXT ANALYZER
2622
2626
SOURCE 1
2627
SOURCE 2
2628
SOURCE N
EVENTS
2624
NOTIFICATION ENGINE
PRIORITIES SYSTEM
2630
2636
SINK 1
2637
SINK 2
2638
SINK M
NOTIFICATIONS

FIG. 26

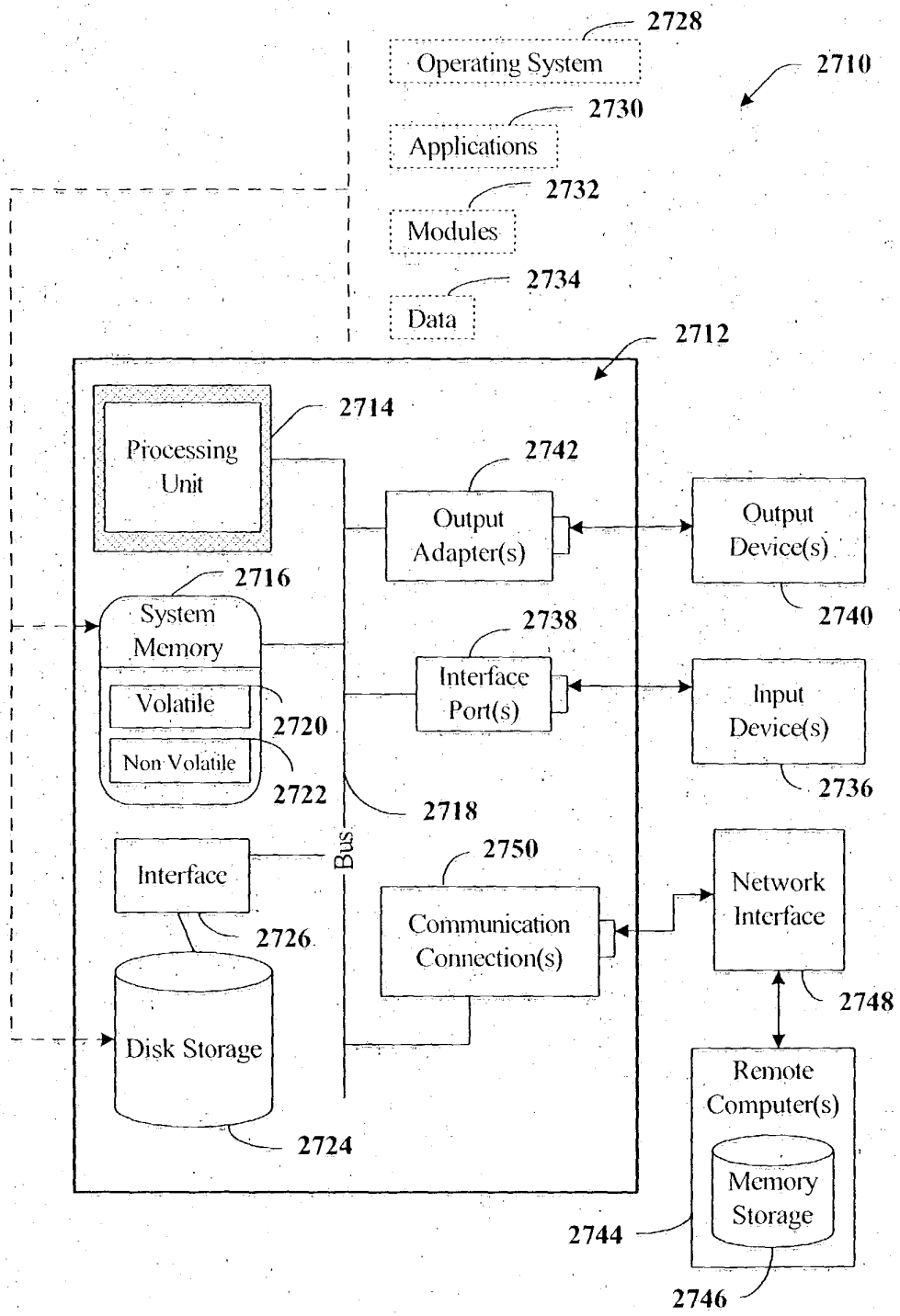

2728
Operating System
2710
2730
Applications
2732
Modules
2734
Data
2712
2714
Processing Unit
2742
Output Adapter(s)
Output Device(s)
2740
2716
System Memory
Volatile
2720
Non Volatile
2722
2738
Interface Port(s)
Input Device(s)
2736
2718
Bus
Interface
2726
2750
Communication Connection(s)
Network Interface
2748
Disk Storage
2724
Remote Computer(s)
Memory Storage
2744
2746

FIG. 27

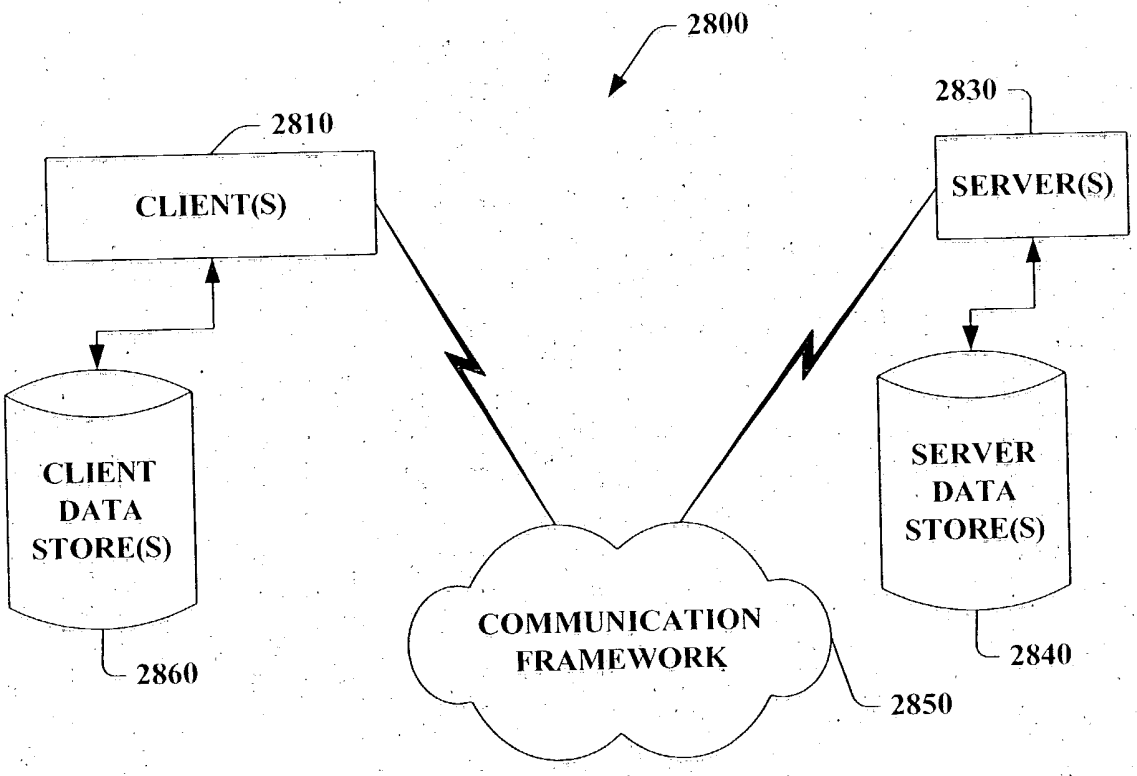

2800
2810
CLIENT(S)
2830
SERVER(S)
CLIENT DATA STORE(S)
2860
COMMUNICATION FRAMEWORK
2850
SERVER DATA STORE(S)
2840

FIG. 28